Weather Unit

*Lessons Belong to Jacob George.
*VFT Lessons Start on Page 31

Lesson Plan

Teacher Candidate's Name: Jacob George

Tentative Date: 3/30/19

Lesson Title: Weather Introduction

Context:

- **Grade Level/Subject 6th Grade Science Classroom**
- **Disability Categories represented *one student with visual impairment**
- **Other health impairment four students with ADHD and a large percentage of students that are recently ESL exited.**
- **Type of classroom (continuum of placements) One teacher to 20-23 students**

Describe UDL integration (into anticipatory, procedure, guided practice, and assessment)

Each day we use technology in the classroom for student engagement. We review our do now's on classroom dojo, which incorporates technology and rewards students for participating. I also use the timer to help keep students, with ADHD and otherwise, on track. I use a smart slate and work through questions with the students on the board.

- **Collaborative methods used to enhance the lesson (e.g., families, community resources, school resources)**
    - **Students study a different geographic region in the world for their VFT. This connects to social studies because it requires that students explore different parts of the word.**

Central Focus: In this unit, students will learn about the types of air masses and about the composition of the atmosphere. Students will then learn about how increased greenhouse gas emissions affects the climate on our planet. We will then dive into the three types of heat transfer. Lastly finish the unit by creating our own weather stations. Students will break into groups and create tools used to measure the different factors of weather. The factors include humidity, wind speed, wind direction, and temperature.

Essential Questions:

What is weather?

What causes weather?

What is the relationship between air masses and changes in weather patterns?

What are the processes involved in the type of weather different regions receive throughout the world?

NJCCCS Standards:

1.41 Grade 6 CPI 1.1, Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

1.41 Grade 6 CPI 1.3, Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

1.31 Grade 6 CPI 2.1, Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

1.31 Grade 6 CPI 2.5, Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.

1.31 Grade 6 CPI 2.6, Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

Learning Goals:

Students will be introduced to weather. By The end of the day they will complete their KWL chart with at least 85% accuracy.

Academic Language:

Examine the learning goals to complete the chart below. Plan supports for at least 2 identified demands

Identified Language Demands	***Planned Language Supports***
Vocabulary (Heat, air masses, weather, climate)	**There will be images, videos, and mind maps to help students understand the definitions**

Language Function	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson. According to Efe, (2011), appointing leaders helps students gain empathy for struggling students, and helps them to carry out responsibilities. Therefore, assigning sally as a group leader will help differentiate instruction because it will give her additional responsibility in the classroom to empower student learning. The student will be more engaged in the lesson and instead of finishing in five minutes and sitting at their desk, they will have additional responsibilities to carry out that will one, help them master the material and also help their teammates learn the material.**
Syntax	**Students will answer questions each day will completing their VFT. This will enable them to formulate sentences using the vocabulary.**
Discourse	**Students will be given time to discuss the concepts amongst themselves. Teacher will circulate to help guide discussion.**

Procedure:

Examine the learning goals, essential questions, and NJCCCS Standards to complete the chart below.

Duration · Overall time for each section of the lesson.	*Instructional Strategies and Learning Tasks* · Include anticipatory set, procedure, guided practice, independent practice, and closure. · Use evidence-based practices AND cite sources (in-text citations with reference list under materials section) to support why you chose to do, what you chose to do.	*Assessment* · Include formative and summative
15 Minutes	Begin *framing discussion.* (Henning, 2008). Introduction: What is weather? Begin KWL chart. Take 5 minutes to think about the question and write the response in your notebook or in your Chromebook. (Google docs upload via google classroom). 5 minutes to discuss. 5 minutes to review with the teacher.	Formative: check do now's online or in notebook. Walk around the room and check student progress and discussion trends.
25 Minutes	Begin *Conceptual discussion*. (Henning, 2008). Show students GOOGLE slides on weather. Allow them to take notes online or on paper in notebooks. See appendix A for google slides	Teacher uses smart slate to walk around and check progress.
10 minutes	Begin *Application discussion*. (Henning, 2008). Review Weather connect back to weather in our area or previous countries where students/parents/family lives. Finish KWL chart.	Teacher checks KWL charts (formative) teacher will check to ensure that student has completed the chart with the correct information for "learned"

Accommodations:

Include adaptive and assistive tech/software/web-supported learning with specific skill areas

Identified Support for …… ***(ELL, advanced student, struggling student, student with IEP or 504).*** **Put one student per box below.**	***Specific Characteristic(s) (Strength/Need)***	***Planned Accommodation(s)*** **These are the changes to "how" the student learns the content. The student achieves the learning goal of the lesson.**
Sally	**High achieving student. Needs additional support to motivate and challenge student.**	**Student will be deemed group leader. This student is required to keep all students in their group on track and to offer assistance to students in their group that are falling behind. This supports the student because it will motivate her to be a leader in the classroom.**
Jonathan	**Visual Impairment**	**Student will be seated closer to the board. Student will be given online access to PowerPoint slides and other material**

Materials / Use of Instructional Technology:

- Teacher Materials: google slides, projector, smart slate, voice amplifier, classroom dojo to randomly select students, reward students, and manage time.
- Student Materials: notebooks and chrome books
- Technology: Smart slate, class dojo, chrome books, projector

The structure of these lessons is based on John E. Henning's discussion based teaching strategies. One important component is the bow tie structure of classroom discourse. Henning's (2008) bow tie structure has three main components for framing discourse. The three components are Framing discussion, conceptual discussion, and application discussion. (Henning, 2008, p. 154).

Framing discussion engages students early on in the lesson by tapping into existing knowledge. During this point in the lesson there are no wrong answers. Discourse is then meant to snowball into conceptual discussion.

Conceptual discussion is the narrow focus portion of the lesson. This is where the teacher presents the content. Here there are right and wrong responses. During this portion there are right and wrong responses. (Henning, 2008, p. 154).

Finally, the lesson will end with an application. This portion of the lesson is meant to open classroom discourse. Here students reflect on what they have learned and apply it to what they already know. (Henning, 2008, p. 155). For example, a teacher may ask why does weather change with seasons? This gets empowers students because it allows them to connect what they learned back to what they knew to stat the lesson. It also prepares them for home work or future lessons.

Lesson Plan

Teacher Candidate's Name: Jacob George

Tentative Date: 3/31/19

Lesson Title: Air Masses

Context:

- **Grade Level/Subject 6th Grade Science Classroom**
- **Disability Categories represented *one student with visual impairment**
- **Other health impairment four students with ADHD and a large percentage of students that are recently ESL exited.**
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- **Collaborative methods used to enhance the lesson (e.g., families, community resources, school resources)**
- **Students study a different geographic region in the world for their VFT. This connects to social studies because it requires that students explore different parts of the word.**

Central Focus: In this unit, students will learn about the types of air masses and about the composition of the atmosphere. Students will then learn about how increased greenhouse gas emissions affects the climate on our planet. We will then dive into the three types of heat transfer. Lastly finish the unit by creating our own weather stations. Students will break into groups and create tools used to measure the different factors of weather. The factors include humidity, wind speed, wind direction, and temperature.

Essential Questions:

What is weather?

What causes weather?

What is the relationship between air masses and changes in weather patterns?

What are the processes involved in the type of weather different regions receive throughout the world?

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1.31 Grade 6 CPI 2.6, Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

Learning Goals:

Students will complete their Mind Maps in notebooks with at least 85% accuracy.

Academic Language:

Examine the learning goals to complete the chart below. Plan supports for at least 2 identified demands.

Identified Language Demands	***Planned Language Supports***
Vocabulary (Heat, air masses, weather, climate, wind, rain, water molecule, angle of sunlight, precipitation)	**There will be images, videos, and mind maps to help students understand the definitions**
Language Function	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before**

	working on the concepts individually during the lesson.
Syntax	**Students will answer questions each day will completing their VFT. This will enable them to formulate sentences using the vocabulary.**
Discourse	**Students will be given time to discuss the concepts amongst themselves. Teacher will circulate to help guide discussion.**

Procedure:

Examine the learning goals, essential questions, and NJCCCS Standards to complete the chart below.

Duration · Overall time for each section of the lesson.	***Instructional Strategies and Learning Tasks*** · Include anticipatory set, procedure, guided practice, independent practice, and closure. · Use evidence-based practices AND cite sources (in-text citations with reference list under materials section) to support why you chose to do, what you chose to do.	***Assessment*** · Include formative and summative
15 Minutes	**Begin *Framing Discussion*. (Henning, 2008). Describe what you think weather is like in a different part of the world. Take 5 minutes to think about the question and write the response in your notebook or in your Chromebook. (Google docs upload via google classroom). 5 minutes to discuss. 5 minutes to review with the teacher.**	**Formative assessment: circulate and monitor progress on do now. Check for completion.**
25 Minutes	**Begin *conceptual discussion*. (Henning, 2008). Complete mosamack mind map activity. This activity will require that students match the vocabulary word with the appropriate picture and definition. (See appendix A).**	**Formative assessment: circulate and monitor student progress on vocabulary mind maps.**

15 Minutes	**Begin *application discussion*. (Henning, 2008). Wrap up discussion by discussing how weather can change, factors of weather, and how weather varies throughout the world. Finish with exit ticket**	**Formative assessment: Exit Ticket, circulate and monitor discussion**

Accommodations:

Include adaptive and assistive tech/software/web-supported learning with specific skill areas

Identified Support for …… ***(ELL, advanced student, struggling student, student with IEP or 504).*** Put one student per box below.	***Specific Characteristic(s)*** ***(Strength/Need)***	***Planned Accommodation(s)*** These are the changes to "how" the student learns the content. The student achieves the learning goal of the lesson.

Sally	**High achieving student. Needs additional support to motivate and challenge student.**	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson. According to Efe, (2011), appointing leaders helps students gain empathy for struggling students, and helps them to carry out responsibilities. Therefore, assigning sally as a group leader will help differentiate instruction because it will give her additional responsibility in the classroom to empower student learning. The student will be more engaged in the lesson and instead of finishing in five minutes and sitting at their desk, they will have additional responsibilities to carry out that will one, help them master the material and also help their teammates learn the material.**
Jonathan	**Visual Impairment**	**Student will be seated closer to the board. Student will be given online access to PowerPoint slides and other material**

Materials / Use of Instructional Technology:

- Teacher Materials: google slides, projector, smart slate, voice amplifier, classroom dojo to randomly select students, reward students, and manage time.
- Student Materials: notebooks and chrome books
- Technology: Smart slate, class dojo, chrome books, projector

The structure of these lessons is based on John E. Henning's discussion based teaching strategies. One important component is the bow tie structure of classroom discourse. Henning's (2008) bow tie structure has three main components for framing discourse. The three components are Framing discussion, conceptual discussion, and application discussion. (Henning, 2008, p. 154).

Framing discussion engages students early on in the lesson by tapping into existing knowledge. During this point in the lesson there are no wrong answers. Discourse is then meant to snowball into conceptual discussion. Conceptual discussion is the narrow focus portion of the lesson. This is where the teacher presents the content. Here there are right and wrong responses. During this portion there are right and wrong responses. (Henning, 2008, p. 154).

Finally, the lesson will end with an application. This portion of the lesson is meant to open classroom discourse. Here students reflect on what they have learned and apply it to what they already know. (Henning, 2008, p. 155). For example, a teacher may ask why does weather change with seasons? This gets empowers students because it allows them to connect what they learned back to what they knew to start the lesson. It also prepares them for home work or future lessons.

Lesson Plan

Teacher Candidate's Name: Jacob George

Tentative Date: 4/1/19

Lesson Title: Pressure Systems

Context:

- **Grade Level/Subject 6th Grade Science Classroom**
- **Disability Categories represented *one student with a visual impairment**
- **Other health impairment four students with ADHD and a large percentage of students that are recently ESL exited.**
- **Type of classroom (continuum of placements) One teacher to 20-23 students**

Describe UDL integration (into anticipatory, procedure, guided practice, and assessment)

Each day we use technology in the classroom for student engagement. We review our do now's on classroom dojo, which incorporates technology and rewards students for participating. I also use the timer to help keep

students, with ADHD and otherwise, on track. I use a smart slate and work through questions with the students on the board.

- **Collaborative methods used to enhance the lesson (e.g., families, community resources, school resources)**
- **Students study a different geographic region in the world for their VFT. This connects to social studies because it requires that students explore different parts of the word.**

Central Focus: In this unit, students will learn about the types of air masses and about the composition of the atmosphere. Students will then learn about how increased greenhouse gas emissions affects the climate on our planet. We will then dive into the three types of heat transfer. Lastly finish the unit by creating our own weather stations. Students will break into groups and create tools used to measure the different factors of weather. The factors include humidity, wind speed, wind direction, and temperature.

Essential Questions:

What is weather?
What causes weather?
What is the relationship between air masses and changes in weather patterns?
What are the processes involved in the type of weather different regions receive throughout the world?

NJCCCS Standards:

1.41 Grade 6 CPI 1.1, Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
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1.31 Grade 6 CPI 2.5, Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
1.31 Grade 6 CPI 2.6, Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

Learning Goals:

Students will construct a model of a weather front. Goal: Complete their models with at least 85% accuracy.

Academic Language:

Examine the learning goals to complete the chart below. Plan supports for at least 2 identified demands

Identified Language Demands	***Planned Language Supports***
Vocabulary (**Heat, air masses, weather, climate, wind, rain, water molecule, angle of sunlight, precipitation**)	**There will be images, videos, and mind maps to help students understand the definitions**

Language Function	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson.**
Syntax	**Students will answer questions each day will completing their VFT. This will enable them to formulate sentences using the vocabulary.**
Discourse	**Students will be given time to discuss the concepts amongst themselves. Teacher will circulate to help guide discussion.**

Procedure:

Examine the learning goals, essential questions, and NJCCCS Standards to complete the chart below.

Duration	***Instructional Strategies and Learning Tasks***	***Assessment***
· Overall time for each section of the lesson.	· Include anticipatory set, procedure, guided practice, independent practice, and closure. · Use evidence-based practices AND cite sources (in-text citations with reference list under materials section) to support why you chose to do, what you chose to do.	· Include formative and summative
15 Minutes	**Begin *Framing Discussion*. (Henning, 2008). Consider a warm humid day in the summer. How does wind affect the weather on this day? How does the sun affect the weather? Take 5 minutes to think about the question and write the response in your notebook or in your Chromebook. (Google docs upload via google classroom). 5 minutes to discuss. 5 minutes to review with the teacher.**	**Formative assessment: circulate and monitor progress on do now. Check for completion.**

25 Minutes	**Begin *conceptual discussion*. (Henning, 2008). Complete high and low pressure map using the website assigned (see appendix b). This activity will require that students match the high and low pressure diagram with the types of weather that occurs during each types of pressure system. (See appendix b).**	**Formative assessment: circulate and monitor student progress on vocabulary mind maps.**
15 Minutes	**Begin *application discussion*. (Henning, 2008). Wrap up discussion by discussing their findings on weather systems. Talk about the type of weather system we have today. Go over home work. Students will go home and talk to their parents about the different types of weather systems. They will ask parents the questions that were discussed during the activity and quiz them to see how much they know.**	**Formative assessment: Exit Ticket, circulate and monitor discussion**

Accommodations:

Include adaptive and assistive tech/software/web-supported learning with specific skill areas.

Identified Support for ……. (ELL, advanced student, struggling student, student with IEP or 504). Put one student per box below.	***Specific Characteristic(s) (Strength/Need)***	***Planned Accommodation(s)*** These are the changes to "how" the student learns the content. The student achieves the learning goal of the lesson.

Sally	**High achieving student. Needs additional support to motivate and challenge student.**	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson. According to Efe, (2011), appointing leaders helps students gain empathy for struggling students, and helps them to carry out responsibilities. Therefore, assigning sally as a group leader will help differentiate instruction because it will give her additional responsibility in the classroom to empower student learning. The student will be more engaged in the lesson and instead of finishing in five minutes and sitting at their desk, they will have additional responsibilities to carry out that will one, help them master the material and also help their teammates learn the material.**
Jonathan	**Visual Impairment**	**Student will be seated closer to the board. Student will be given online access to PowerPoint slides and other material**

Materials / Use of Instructional Technology:

- Teacher Materials: google slides, projector, smart slate, voice amplifier, classroom dojo to randomly select students, reward students, and manage time.
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Framing discussion engages students early on in the lesson by tapping into existing knowledge. During this point in the lesson there are no wrong answers. Discourse is then meant to snowball into conceptual discussion. Conceptual discussion is the narrow focus portion of the lesson. This is where the teacher presents the content. Here there are right and wrong responses. During this portion there are right and wrong responses. (Henning, 2008, p. 154).

Finally, the lesson will end with an application. This portion of the lesson is meant to open classroom discourse. Here students reflect on what they have learned and apply it to what they already know. (Henning, 2008, p. 155). For example, a teacher may ask why does weather change with seasons? This gets empowers students because it allows them to connect what they learned back to what they knew to start the lesson. It also prepares them for home work or future lessons.

Lesson Plan

Teacher Candidate's Name: Jacob George

Tentative Date: 4/2/19

Lesson Title: Layers of the atmosphere

Context:

- **Grade Level/Subject 6th Grade Science Classroom**
- **Disability Categories represented *one student with a visual impairment**
- **Other health impairment four students with ADHD and a large percentage of students that are recently ESL exited.**
- **Type of classroom (continuum of placements) One teacher to 20-23 students**

Describe UDL integration (into anticipatory, procedure, guided practice, and assessment)

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students, with ADHD and otherwise, on track. I use a smart slate and work through questions with the students on the board.

- **Collaborative methods used to enhance the lesson (e.g., families, community resources, school resources)**
- **Students study a different geographic region in the world for their VFT. This connects to social studies because it requires that students explore different parts of the word.**

Central Focus: In this unit, students will learn about the types of air masses and about the composition of the atmosphere. Students will then learn about how increased greenhouse gas emissions affects the climate on our planet. We will then dive into the three types of heat transfer. Lastly finish the unit by creating our own weather stations. Students will break into groups and create tools used to measure the different factors of weather. The factors include humidity, wind speed, wind direction, and temperature.

Essential Questions:

What is weather?
What causes weather?
What is the relationship between air masses and changes in weather patterns?
What are the processes involved in the type of weather different regions receive throughout the world?

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1.31 Grade 6 CPI 2.6, Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

Learning Goals:

Goal: Students will read text pages on the layers of the atmosphere. Students will create an outline of the layers of the atmosphere in their notebooks. Understand and copy down definitions with at least 95% accuracy**.**

Academic Language:

Examine the learning goals to complete the chart below. Plan supports for at least 2 identified demands

Identified Language Demands	***Planned Language Supports***

Vocabulary (**Thermosphere, mesosphere, stratosphere, troposphere, greenhouse effect, air pressure**)	**There will be images, videos, and mind maps to help students understand the definitions**
Language Function	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson.**
Syntax	**Students will answer questions each day will completing their VFT. This will enable them to formulate sentences using the vocabulary.**
Discourse	**Students will be given time to discuss the concepts amongst themselves. Teacher will circulate to help guide discussion.**

Procedure:

Examine the learning goals, essential questions, and NJCCCS Standards to complete the chart below

Duration	***Instructional Strategies and Learning Tasks***	***Assessment***
· Overall time for each section of the lesson.	**· Include anticipatory set, procedure, guided practice, independent practice, and closure.** **· Use evidence-based practices AND cite sources (in-text citations with reference list under materials section) to support why you chose to do, what you chose to do.**	**· Include formative and summative**

15 Minutes	**Begin *Framing Discussion*. (Henning, 2008). Have you ever flown on a plane? Imagine you are flying in a plane and get a glimpse of the clouds looking downward. Above you there is just the outer atmosphere and space. Consider what the atmosphere is made of and where weather takes place. Take 5 minutes to think about the question and write the response in your notebook or in your Chromebook. (Google docs upload via google classroom). 5 minutes to discuss. 5 minutes to review with the teacher.**	**Formative assessment: circulate and monitor progress on do now. Check for completion.**
25 Minutes	**Begin *conceptual discussion*. (Henning, 2008).** **Show two youtube clips on air pressure and greenhouse effect. See appendix C. Complete layers of the atmosphere diagram. This activity will require that students match the correct layer of the atmosphere to the term. (See appendix C).**	**Formative assessment: circulate and monitor student progress on vocabulary mind maps.**
15 Minutes	**Begin *application discussion*. (Henning, 2008). Wrap up discussion with a numbered heads discussion protocol. See appendix C for discussion protocol questions**	**Formative assessment: circulate and monitor discussion**

Accommodations

Include adaptive and assistive tech/software/web-supported learning with specific skill areas.

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Lesson Plan

Teacher Candidate's Name: Jacob George

Tentative Date: 4/4/19

Lesson Title: Types of Heat transfer

Context:

- **Grade Level/Subject 6th Grade Science Classroom**
- **Disability Categories represented *one student with a visual impairment**
- **Other health impairment four students with ADHD and a large percentage of students that are recently ESL exited.**
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1.31 Grade 6 CPI 2.1, develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
1.31 Grade 6 CPI 2.5, Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
1.31 Grade 6 CPI 2.6, Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

Learning Goals:

Goal: Students will be able to understand how thermal energy moves in the atmosphere. Students will be able to understand how heat affects weather. Goal: Students must complete at least 85% of questions.

Academic Language:

Examine the learning goals to complete the chart below. Plan supports for at least 2 identified demands

Identified Language Demands	*Planned Language Supports*
Vocabulary (Conduction, convection, radiation)	**There will be images, videos, and mind maps to help students understand the definitions**
Language Function	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson.**
Syntax	**Students will answer questions each day will completing their VFT. This will enable them to formulate sentences using the vocabulary.**
Discourse	**Students will be given time to discuss the concepts amongst themselves. Teacher will circulate to help guide discussion.**

Procedure:

Examine the learning goals, essential questions, and NJCCCS Standards to complete the chart below.

Duration	***Instructional Strategies and Learning Tasks***	***Assessment***
· Overall time for each section of the lesson.	· Include anticipatory set, procedure, guided practice, independent practice, and closure. · Use evidence-based practices AND cite sources (in-text citations with reference list under materials section) to support why you chose to do, what you chose to do.	· Include formative and summative

15 Minutes	**Begin *Framing Discussion*. (Henning, 2008). Consider a steaming hot day at the beach. You Glance across the hot sand while you're laying down on your towel. The image if the vast beach in the distance appears blurry. Why does the hot sand appear blurry? Which way is the heat traveling? Take 5 minutes to think about the question and write the response in your notebook or in your Chromebook. (Google docs upload via google classroom). 5 minutes to discuss. 5 minutes to review with the teacher.**	**Formative assessment: circulate and monitor progress on do now. Check for completion.**
25 Minutes	**Begin *conceptual discussion*. (Henning, 2008).** **Teacher will introduce the direction of heat transfer. Teacher will read through PowerPoint slides, and then model the three types of heat transfer via a YouTube clip (see appendix d). Students will complete the questions. (see appendix d).**	**Formative assessment: circulate and monitor student progress on vocabulary mind maps. Questions will be summative grade.**
15 Minutes	**Begin *application discussion*. (Henning, 2008). Wrap up discussion with a snowball protocol. Students will start by reflecting on the three types of heat transfer in pair, then in groups, and eventually in a whole class discussion. Around 7 minutes will be set for small group discussion. Teacher will call randomly on students at the end by using classroom to check for understanding.**	**Formative assessment: circulate and monitor discussion**

Accommodations:

Include adaptive and assistive tech/software/web-supported learning with specific skill areas.

Identified Support for …… ***(ELL, advanced student, struggling student, student with IEP or 504).*** Put one student per box below.	***Specific Characteristic(s) (Strength/Need)***	***Planned Accommodation(s)*** These are the changes to "how" the student learns the content. The student achieves the learning goal of the lesson.

Sally	**High achieving student. Needs additional support to motivate and challenge student.**	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson. According to Efe, (2011), appointing leaders helps students gain empathy for struggling students, and helps them to carry out responsibilities. Therefore, assigning sally as a group leader will help differentiate instruction because it will give her additional responsibility in the classroom to empower student learning. The student will be more engaged in the lesson and instead of finishing in five minutes and sitting at their desk, they will have additional responsibilities to carry out that will one, help them master the material and also help their teammates learn the material.**
Jonathan	**Visual Impairment**	**Student will be seated closer to the board. Student will be given online access to PowerPoint slides and other material**

Materials / Use of Instructional Technology:

- Teacher Materials: google slides, projector, smart slate, voice amplifier, classroom dojo to randomly select students, reward students, and manage time.
- Student Materials: notebooks and chrome books
- Technology: Smart slate, class dojo, chrome books, projector

The structure of these lessons is based on John E. Henning's discussion based teaching strategies. One important component is the bow tie structure of classroom discourse. Henning's (2008) bow tie structure has three main components for framing discourse. The three components are Framing discussion, conceptual discussion, and application discussion. (Henning, 2008, p. 154).

Framing discussion engages students early on in the lesson by tapping into existing knowledge. During this point in the lesson there are no wrong answers. Discourse is then meant to snowball into conceptual discussion. Conceptual discussion is the narrow focus portion of the lesson. This is where the teacher presents the content. Here there are right and wrong responses. During this portion there are right and wrong responses. (Henning, 2008, p. 154).

Finally, the lesson will end with an application. This portion of the lesson is meant to open classroom discourse. Here students reflect on what they have learned and apply it to what they already know. (Henning, 2008, p. 155). For example, a teacher may ask why does weather change with seasons? This gets empowers students because it allows them to connect what they learned back to what they knew to start the lesson. It also prepares them for home work or future lessons.

Lesson Plan

Teacher Candidate's Name: Jacob George

Tentative Date: 4/4/19

Lesson Title: Earth's Tilt and Regional Climate

Context:

- **Grade Level/Subject 6th Grade Science Classroom**
- **Disability Categories represented *one student with a visual impairment**
- **Other health impairment four students with ADHD and a large percentage of students that are recently ESL exited.**
- **Type of classroom (continuum of placements) One teacher to 20-23 students**

Describe UDL integration (into anticipatory, procedure, guided practice, and assessment)

Each day we use technology in the classroom for student engagement. We review our do now's on classroom dojo, which incorporates technology and rewards students for participating. I also use the timer to help keep

students, with ADHD and otherwise, on track. I use a smart slate and work through questions with the students on the board.

- **Collaborative methods used to enhance the lesson (e.g., families, community resources, school resources)**
- **Students study a different geographic region in the world for their VFT. This connects to social studies because it requires that students explore different parts of the word.**

Central Focus: In this unit, students will learn about the types of air masses and about the composition of the atmosphere. Students will then learn about how increased greenhouse gas emissions affects the climate on our planet. We will then dive into the three types of heat transfer. Lastly finish the unit by creating our own weather stations. Students will break into groups and create tools used to measure the different factors of weather. The factors include humidity, wind speed, wind direction, and temperature.

Essential Questions:

What is weather?
What causes weather?
What is the relationship between air masses and changes in weather patterns?
What are the processes involved in the type of weather different regions receive throughout the world?

NJCCCS Standards:

1.41 Grade 6 CPI 1.1, define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
1.41 Grade 6 CPI 1.3, Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
1.31 Grade 6 CPI 2.1, develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
1.31 Grade 6 CPI 2.5, Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
1.31 Grade 6 CPI 2.6, Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

Learning Goals:

Goal: Students will be able to understand how thermal energy moves in the atmosphere. Students will be able to understand how heat affects weather. Goal: Students must complete at least 85% of questions.

Academic Language:

Examine the learning goals to complete the chart below. Plan supports for at least 2 identified demands.

Identified Language Demands	***Planned Language Supports***

Vocabulary (**Coriolis effect, global winds, jet stream, land/sea breezes, mountain/valley breezes**)	**There will be images, videos, and mind maps to help students understand the definitions**
Language Function	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson.**
Syntax	**Students will answer questions each day will completing their VFT. This will enable them to formulate sentences using the vocabulary.**
Discourse	**Students will be given time to discuss the concepts amongst themselves. Teacher will circulate to help guide discussion.**

Procedure:

Examine the learning goals, essential questions, and NJCCCS Standards to complete the chart below.

Duration	***Instructional Strategies and Learning Tasks***	***Assessment***
· Overall time for each section of the lesson.	· Include anticipatory set, procedure, guided practice, independent practice, and closure. · Use evidence-based practices AND cite sources (in-text citations with reference list under materials section) to support why you chose to do, what you chose to do.	· Include formative and summative

15 Minutes	**Begin *Framing Discussion*. (Henning, 2008). Imagine you're at the park on a very windy day. You're playing baseball and the wind is at your back. Today you hit the ball farther than you ever have before. Explain why you believe wind can carry a ball? Now consider how the wind effects climates in different parts of the world. Take 5 minutes to think about the question and write the response in your notebook or in your Chromebook. (Google docs upload via google classroom). 5 minutes to discuss. 5 minutes to review with the teacher.**	**Formative assessment: circulate and monitor progress on do now. Check for completion.**
25 Minutes	**Begin *conceptual discussion*. (Henning, 2008). Teacher will work on quiz let live for Earth's Tilt. This game will encourage discussion among students and require that students participate and work collaboratively in groups. This game creates positives interdependence among students. See appendix E for quizlet live link. Use this link to access quizlet live example.** https://www.youtube.com/watch?v=q64qTBfK0iE	**Formative assessment: circulate and monitor student progress on vocabulary mind maps.**
15 Minutes	**Begin *application discussion*. (Henning, 2008). Students will discuss what they learned. Teacher will ask questions about the topic. See appendix E.**	**Formative assessment: circulate and monitor discussion**

Accommodations:

Include adaptive and assistive tech/software/web-supported learning with specific skill areas.

Identified Support for ……. (ELL, advanced student, struggling student, student with IEP or 504). Put one student per box below.	***Specific Characteristic(s) (Strength/Need)***	***Planned Accommodation(s)*** These are the changes to "how" the student learns the content. The student achieves the learning goal of the lesson.

Sally	**High achieving student. Needs additional support to motivate and challenge student.**	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson. According to Efe, (2011), appointing leaders helps students gain empathy for struggling students, and helps them to carry out responsibilities. Therefore, assigning sally as a group leader will help differentiate instruction because it will give her additional responsibility in the classroom to empower student learning. The student will be more engaged in the lesson and instead of finishing in five minutes and sitting at their desk, they will have additional responsibilities to carry out that will one, help them master the material and also help their teammates learn the material.**
Jonathan	**Visual Impairment**	**Student will be seated closer to the board. Student will be given online access to PowerPoint slides and other material**

Materials / Use of Instructional Technology:

- Teacher Materials: google slides, projector, smart slate, voice amplifier, classroom dojo to randomly select students, reward students, and manage time.
- Student Materials: notebooks and chrome books
- Technology: Smart slate, class dojo, chrome books, projector

The structure of these lessons is based on John E. Henning's discussion based teaching strategies. One important component is the bow tie structure of classroom discourse. Henning's (2008) bow tie structure has three main components for framing discourse. The three components are Framing discussion, conceptual discussion, and application discussion. (Henning, 2008, p. 154).

Framing discussion engages students early on in the lesson by tapping into existing knowledge. During this point in the lesson there are no wrong answers. Discourse is then meant to snowball into conceptual discussion. Conceptual discussion is the narrow focus portion of the lesson. This is where the teacher presents the content. Here there are right and wrong responses. During this portion there are right and wrong responses. (Henning, 2008, p. 154).

Finally, the lesson will end with an application. This portion of the lesson is meant to open classroom discourse. Here students reflect on what they have learned and apply it to what they already know. (Henning, 2008, p. 155). For example, a teacher may ask why does weather change with seasons? This gets empowers students because it allows them to connect what they learned back to what they knew to start the lesson. It also prepares them for home work or future lessons.

Lesson Plan
Teacher Candidate's Name: Jacob George
Tentative Date: April 10
Lesson Title: Weather in Nicaragua

Context:

- Grade Level/Subject 6th Grade Science Classroom
- Disability Categories represented *one student with a visual impairment
- Other health impairment four students with ADHD and a large percentage of students that are recently ESL exited.
- Type of classroom (continuum of placements) One teacher to 20-23 students

Describe UDL integration (into anticipatory, procedure, guided practice, and assessment)

Each day we use technology in the classroom for student engagement. We review our do now's on classroom dojo, which incorporates technology and rewards students for participating. I also use the timer to help keep students, with ADHD and otherwise, on track. I use a smart slate and work through questions with the students on the board.

- Collaborative methods used to enhance the lesson (e.g., families, community resources, school resources)
- Students study a different geographic region in the world for their VFT. This connects to social studies because it requires that students explore different parts of the word.

Central Focus: In this unit, students will learn about the types of air masses and about the composition of the atmosphere. Students will then learn about how increased greenhouse gas emissions affects the climate on our planet. We will then dive into the three types of heat transfer. Lastly finish the unit with our virtual field trip.

Essential Questions: What drives the cycling of Earth's materials?

What are the major factors that determine regional climates?
NJCCCS Standards: .31 Grade 6 CPI 2.5, Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
1.31 Grade 6 CPI 2.6, Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
1.31 Grade 6 CPI 2.2, Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
1.31 Grade 6 CPI 2.4, Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
1.31 Grade 6 CPI 3.1, Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
1.31 Grade 6 CPI 3.2, Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
1.31 Grade 6 CPI 3.3, Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*
1.31 Grade 6 CPI 3.4, Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

1.31 Grade 6 CPI 3.5, Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century

Learning Goals: students will explain how the Earth's tilt affects this region with 85% accuracy.

Identified Language Demands	***Planned Language Supports***
Vocabulary	**There will be images, videos, and mind maps to help students understand the definitions. Terms: Ecuador, Climate, weather, North/South Pole, conduction, convection, radiation**
Language Function	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the VFT.**
Syntax	**Students will answer questions each day will completing their VFT. This will enable them to formulate sentences using the vocabulary.**
Discourse	**Students will be given time to discuss the concepts amongst themselves. Teacher will circulate to help guide discussion.**

Duration · *Overall time for each section of the lesson.*	*Instructional Strategies and Learning Tasks* · *Include anticipatory set, procedure, guided practice, independent practice, and closure.* · *Use evidence-based practices AND cite sources (in-text citations with reference list under materials section) to support why you chose to do, what you chose to do.*	*Assessment* · *Include formative and summative*
Duration	*Instruction*	*Assessment (Formative/summative)*
10 minutes	*Do Now: Describe what the climate might be like in Nicaragua. Think pair share discussion protocol when finished with do now. Classroom dojo to randomly assess students. (Student option to share. Students can write answer down or ask a partner to share for that student)*	*Teacher circulates around the room to monitor progress*
15 Minutes	*Students will read article on Nicaragua online/handout (students choice)*	*Teacher will circulate to check for understanding*
25-30 Minutes	*Students will begin VFT intro* *Part one: Log Into Wix* *Part two: Follow instructions and begin guided questions See appendix f for questions*	*Students will answer questions online. Teacher will monitor*
5 Min	*Closing: Review what you learned, talk about what to expect for next time*	

Accommodations:

Identified Support for …… ***(ELL, advanced student, struggling student, student with IEP or 504).*** Put one student per box below.	***Specific Characteristic(s) (Strength/Need)***	***Planned Accommodation(s)*** These are the changes to "how" the student learns the content. The student achieves the learning goal of the lesson.
Sally	**High achieving student. Needs additional support to motivate and challenge student.**	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson. According to Efe, (2011), appointing leaders helps students gain empathy for struggling students, and helps them to carry out responsibilities. Therefore, assigning sally as a group leader will help differentiate instruction because it will give her additional responsibility in the classroom to empower student learning. The student will be more engaged in the lesson and instead of finishing in five minutes and sitting at their desk, they will have additional responsibilities to carry out that will one, help them master the material and also help their teammates learn the material.**

Jonathan	**Visual Impairment**	**Student will be seated closer to the board. Student will be given online access to PowerPoint slides and other material**

Materials / Use of Instructional Technology:

- Teacher Materials google slides, projector, smart slate, voice amplifier, classroom dojo to randomly select students, reward students, and manage time.
- Student Materials Chromebook and notebook
- Technology Smartslate, Chromebooks, projector, Classdojo (interactive technology)
- Reference List (of sources cited under the "Procedures" section).

Homework / Assignment for Next Class: Consider what weather may be like in Germany. Ask someone at home if they have any thoughts on what the weather is like in Germany.

Lesson Plan

Teacher Candidate's Name: Jacob George
Tentative Date: April 11
Lesson Title: **Weather in Germany**
Context:

- Grade Level/Subject 6th Grade Science Classroom
- Disability Categories represented *one student with a visual impairment
- Other health impairment four students with ADHD and a large percentage of students that are recently ESL exited.
- Type of classroom (continuum of placements) One teacher to 20-23 students

Describe UDL integration (into anticipatory, procedure, guided practice, and assessment)
Each day we use technology in the classroom for student engagement. We review our do now's on classroom dojo, which incorporates technology and rewards students for participating. I also use the timer to help keep students, with ADHD and otherwise, on track. I use a smart slate and work through questions with the students on the board.

- Collaborative methods used to enhance the lesson (e.g., families, community resources, school resources)
- Students study a different geographic region in the world for their VFT. This connects to social studies because it requires that students explore different parts of the word.

Central Focus: In this unit, students will learn about the types of air masses and about the composition of the atmosphere. Students will then learn about how increased greenhouse gas emissions affects the climate on our planet. We will then dive into the three types of heat transfer. Lastly finish the unit with our virtual field trip.

Essential Questions: What drives the cycling of Earth's materials?

What are the major factors that determine regional climates?

NJCCCS Standards: .31 Grade 6 CPI 2.5, Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
1.31 Grade 6 CPI 2.6, Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
1.31 Grade 6 CPI 2.2, Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
1.31 Grade 6 CPI 2.4, Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
1.31 Grade 6 CPI 3.1, Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

Learning Goals: students will explain how the Earth's tilt affects this region with 85% accuracy.
Academic Language:
Examine the learning goals to complete the chart below. Plan supports for at least 2 identified demands.

Identified Language Demands	***Planned Language Supports***
Vocabulary	**There will be images, videos, and mind maps to help students understand the definitions. Terms: Ecuador, Climate, weather, North/South Pole, conduction, convection, radiation**
Language Function	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the VFT.**
Syntax	**Students will answer questions each day will completing their VFT. This will enable them to formulate sentences using the vocabulary.**
Discourse	**Students will be given time to discuss the concepts amongst themselves. Teacher will circulate to help guide discussion.**

Procedure:
Examine the learning goals, essential questions, and NJCCCS Standards to complete the chart below.

Duration	**Instruction**	**Assessment (Formative/summative)**
10 minutes	**Do Now: Describe what you think the climate might be like in Germany. Think pair share discussion protocol when finished with do now. Classroom dojo to randomly assess students. (Student option to share. Students can write answer down or ask a partner to share for that student)**	**Teacher circulates around the room to monitor progress**

15 Minutes	**Students will read article on Germany online/handout (students choice)**	**Teacher will circulate to check for understanding**
15 Minutes	**Students will begin VFT intro** **Part one: Log Into Wix** **Part two: Follow instructions Research two cities within Germany with your assigned partner. You and your partner will find two new facts each to share at the end of the day**	**Students will answer questions online. Teacher will monitor**
15 Min	**Closing: Numbered Heads together. Students will work in groups of 4. Each student will get a number. Factors of weather will be posted to the board (ex. Climate, humidity, precipitation). You will discuss what the climate/humidity/ precipitation will be like in your country/city. When timer goes off teacher calls, a number the number from each group will share what they discussed.**	**Teacher will circulate to check for understanding**
Differentiation	**Sally (above average science student) will work on her passion project weather report. Based on a city of her choosing. Could be anywhere in the world**	**Extra Credit Grade**
	Jonathon (has trouble seeing the board) will be seated close to the teacher and given a paper copy of any material that is presented	**Monitor to check for understanding**

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Materials / Use of Instructional Technology:

- Teacher Materials google slides, projector, smart slate, voice amplifier, classroom dojo to randomly select students, reward students, and manage time.
- Student Materials Chromebook and notebook
- Technology Smartslate, Chromebooks, projector, Classdojo (interactive technology)
- Reference List (of sources cited under the “Procedures” section).

Homework / Assignment for Next Class: Consider what weather may be like in the Siberian Tundra. Ask someone at home if they have any thoughts on what the weather is like in the Siberian Tundra.

Lesson Plan

Teacher Candidate's Name: Jacob George
Tentative Date: April 12
Lesson Title: **Weather in Siberian Tundra**
Context:

- Grade Level/Subject 6th Grade Science Classroom
- Disability Categories represented *one student with a visual impairment
- Other health impairment four students with ADHD and a large percentage of students that are recently ESL exited.
- Type of classroom (continuum of placements) One teacher to 20-23 students

Describe UDL integration (into anticipatory, procedure, guided practice, and assessment)
Each day we use technology in the classroom for student engagement. We review our do now's on classroom dojo, which incorporates technology and rewards students for participating. I also use the timer to help keep students, with ADHD and otherwise, on track. I use a smart slate and work through questions with the students on the board.

- Collaborative methods used to enhance the lesson (e.g., families, community resources, school resources)
- Students study a different geographic region in the world for their VFT. This connects to social studies because it requires that students explore different parts of the word.

Central Focus: In this unit, students will learn about the types of air masses and about the composition of the atmosphere. Students will then learn about how increased greenhouse gas emissions affects the climate on our planet. We will then dive into the three types of heat transfer. Lastly finish the unit with our virtual field trip project.

Essential Questions: What drives the cycling of Earth's materials?
What are the major factors that determine regional climates?
NJCCCS Standards: .31 Grade 6 CPI 2.5, Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
1.31 Grade 6 CPI 2.6, Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
1.31 Grade 6 CPI 2.2, Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
1.31 Grade 6 CPI 2.4, Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
1.31 Grade 6 CPI 3.1, Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
1.31 Grade 6 CPI 3.2, Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
1.31 Grade 6 CPI 3.3, Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*
1.31 Grade 6 CPI 3.4, Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
1.31 Grade 6 CPI 3.5, Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century

Learning Goals: students will explain how the Earth's tilt affects this region with 85% accuracy.

Identified Language Demands	***Planned Language Supports***
Vocabulary	**There will be images, videos, and mind maps to help students understand the definitions. Terms: Ecuador, Climate, weather, North/South Pole, conduction, convection, radiation**
Language Function	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the VFT.**
Syntax	**Students will answer questions each day will completing their VFT. This will enable them to formulate sentences using the vocabulary.**
Discourse	**Students will be given time to discuss the concepts amongst themselves. Teacher will circulate to help guide discussion.**

Procedure:

Examine the learning goals, essential questions, and NJCCCS Standards to complete the chart below.

Duration	Instruction	Assessment (Formative/summative)
10 minutes	Do Now: Look at the map on the board and interactive online map. Describe what you think the climate might be like in The Siberian Tundra. Think pair share discussion protocol when finished with do now. Classroom dojo to randomly assess students. (Student option to share. Students can write answer down or ask a partner to share for that student)	Teacher circulates around the room to monitor progress
15 Minutes	Students will read article on Siberian Tundra online/handout (students choice) http://www.blueplanetbiomes.org/siberian_tundra.htm	Teacher will circulate to check for understanding
15 Minutes	Students will begin VFT intro Part one: Log Into Wix Part two: Watch National geographic video clip on what life is like in the Siberian Tundra. Answer Posted Questions on the Siberian Tundra https://www.youtube.com/watch?v=RT6x5GVPFG8	Students will answer questions online. Teacher will monitor

15 Min	Closing: Students will complete kahoot! https://create.kahoot.it/details/tundra/d469a3fb-625f-4e93-ae9b-45fd941753e3	

Accommodations:

Identified Support for ……. (ELL, advanced student, struggling student, student with IEP or 504). Put one student per box below.	***Specific Characteristic(s) (Strength/Need)***	***Planned Accommodation(s)*** These are the changes to "how" the student learns the content. The student achieves the learning goal of the lesson.
Sally	**High achieving student. Needs additional support to motivate and challenge student.**	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson. According to Efe, (2011), appointing leaders helps students gain empathy for struggling students, and helps them to carry out responsibilities. Therefore, assigning sally as a group leader will help differentiate instruction because it will give her additional responsibility in the classroom to empower student learning. The student will be more engaged in the lesson and instead of finishing in five minutes and sitting at their desk, they will have additional responsibilities to carry out that will one, help them master the**

		material and also help their teammates learn the material.
Jonathan	**Visual Impairment**	**Student will be seated closer to the board. Student will be given online access to PowerPoint slides and other material**

Materials / Use of Instructional Technology:

- Teacher Materials google slides, projector, smart slate, voice amplifier, classroom dojo to randomly select students, reward students, and manage time.
- Student Materials Chromebook and notebook
- Technology Smartslate, Chromebooks, projector, Classdojo (interactive technology)
- Reference List (of sources cited under the "Procedures" section).

Homework / Assignment for Next Class: none

Materials / Use of Instructional Technology:

- Teacher Materials: google slides, projector, smart slate, voice amplifier, classroom dojo to randomly select students, reward students, and manage time.
- Student Materials: notebooks and chrome books, plicker cards
- Technology: Smart slate, class dojo, chrome books, projector

Final Lesson Plan

Teacher Candidate's Name: Jacob George
Tentative Date: 4/12/19
Lesson Title: Review
Context:

- **Grade Level/Subject 6th Grade Science Classroom**
- **Disability Categories represented *one student with a visual impairment**
- **Other health impairment four students with ADHD and a large percentage of students that are recently ESL exited.**
- **Type of classroom (continuum of placements) One teacher to 20-23 students**

Describe UDL integration (into anticipatory, procedure, guided practice, and assessment)
Each day we use technology in the classroom for student engagement. We review our do now's on classroom dojo, which incorporates technology and rewards students for participating. I also use the timer to help keep students, with ADHD and otherwise, on track. I use a smart slate and work through questions with the students on the board.

- **Collaborative methods used to enhance the lesson (e.g., families, community resources, school resources)**

- **Students study a different geographic region in the world for their VFT. This connects to social studies because it requires that students explore different parts of the word.**

Central Focus: In this unit, students will learn about the types of air masses and about the composition of the atmosphere. Students will then learn about how increased greenhouse gas emissions affects the climate on our planet. We will then dive into the three types of heat transfer. Lastly finish the unit with our virtual field trip.

Essential Questions:
What is weather?
What causes weather?
What is the relationship between air masses and changes in weather patterns?
What are the processes involved in the type of weather different regions receive throughout the world?

NJCCCS Standards:
1.41 Grade 6 CPI 1.1, define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
1.41 Grade 6 CPI 1.3, Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
1.31 Grade 6 CPI 2.1, develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
1.31 Grade 6 CPI 2.5, Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
1.31 Grade 6 CPI 2.6, Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

Learning Goals:
Students will be review main components of the unit. Goal: All students will answer picker cards questions with at least 85% accuracy. (Will use plicker data tool to analyze)
Academic Language:
Examine the learning goals to complete the chart below. Plan supports for at least 2 identified demands.

Identified Language Demands	***Planned Language Supports***
Vocabulary (Coriolis effect, global winds, jet stream, land/sea breezes, mountain/valley breezes)	**There will be images, videos, and mind maps to help students understand the definitions**
Language Function	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the**

	concepts individually during the lesson.
Syntax	**Students will answer questions each day will completing their VFT. This will enable them to formulate sentences using the vocabulary.**
Discourse	**Students will be given time to discuss the concepts amongst themselves. Teacher will circulate to help guide discussion.**

Procedure:

Examine the learning goals, essential questions, and NJCCCS Standards to complete the chart below.

Duration	***Instructional Strategies and Learning Tasks***	***Assessment***
· Overall time for each section of the lesson.	· Include anticipatory set, procedure, guided practice, independent practice, and closure. · Use evidence-based practices AND cite sources (in-text citations with reference list under materials section) to support why you chose to do, what you chose to do.	· Include formative and summative
15 Minutes	**Begin *Framing Discussion*. (Henning, 2008). Consider all that you have learned throughout the unit. Talk with your partner about which country was your favorite to visit during the VFT. What was the weather like in this place??**	**Formative assessment: circulate and monitor progress on do now. Check for completion.**
25 Minutes	**Begin *conceptual discussion*. (Henning, 2008). Students will complete a spreadsheet to analyze which country has the greatest precipitation. See appendix I for link.** **Data link: weather.com**	**Summative assessment: Spreadsheets will be a summative grade**

15 Minutes	**Begin *application discussion*. (Henning, 2008). Students will discuss what they learned. Teacher will ask questions about the topic. See appendix I.**	**Formative assessment: circulate and monitor discussion**

Accommodations:

Include adaptive and assistive tech/software/web-supported learning with specific skill areas.

Identified Support for ……. (ELL, advanced student, struggling student, student with IEP or 504). Put one student per box below.	***Specific Characteristic(s) (Strength/Need)***	***Planned Accommodation(s)*** These are the changes to "how" the student learns the content. The student achieves the learning goal of the lesson.

Sally	**High achieving student. Needs additional support to motivate and challenge student.**	**This academic language will be used to help guide students through the learning process. The instructor will introduce language initially. Students will then have time to discuss the academic language before working on the concepts individually during the lesson. According to Efe, (2011), appointing leaders helps students gain empathy for struggling students, and helps them to carry out responsibilities. Therefore, assigning sally as a group leader will help differentiate instruction because it will give her additional responsibility in the classroom to empower student learning. The student will be more engaged in the lesson and instead of finishing in five minutes and sitting at their desk, they will have additional responsibilities to carry out that will one, help them master the material and also help their teammates learn the material.**
Jonathan	**Visual Impairment**	**Student will be seated closer to the board. Student will be given online access to PowerPoint slides and other material**

The structure of these lessons is based on John E. Henning's discussion based teaching strategies. One important component is the bow tie structure of classroom discourse. Henning's (2008) bow tie structure has three main

components for framing discourse. The three components are Framing discussion, conceptual discussion, and application discussion. (Henning, 2008, p. 154).

Framing discussion engages students early on in the lesson by tapping into existing knowledge. During this point in the lesson there are no wrong answers. Discourse is then meant to snowball into conceptual discussion. Conceptual discussion is the narrow focus portion of the lesson. This is where the teacher presents the content. Here there are right and wrong responses. During this portion there are right and wrong responses. (Henning, 2008, p. 154).

Finally, the lesson will end with an application. This portion of the lesson is meant to open classroom discourse. Here students reflect on what they have learned and apply it to what they already know. (Henning, 2008, p. 155). For example, a teacher may ask why does weather change with seasons? This gets empowers students because it allows them to connect what they learned back to what they knew to stat the lesson. It also prepares them for home work or future lessons.

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III. Exit Ticket: Check for Understanding

Complete the exit ticket below *or* you can take the quiz online!

Name: _____ **Date:** _____

1. Where on Earth do the sun's rays hit at the most direct angle?
   a. The North Pole
   b. The South Pole
   c. North America
   d. The Equator
2. The sun beats down on the Tropics and causes what molecules to evaporate into the air mass above it?
   a. Nitrogen
   b. Oxygen
   c. Water
   d. Carbon Dioxide
3. Which of the following is **true** about the movement of air?
   a. Warm air rises
   b. Cold air rises
4. As warm air rises, it cools and condenses. This causes which of the following?
   a. Sun
   b. Wind
   c. Rain
   d. Thunder
5. Wind is caused by which of the following?
   a. Clouds condensing
   b. Water evaporating
   c. Sun shining down on Earth
   d. A cold air mass moving in to replace a rising warm air mass
6. What has to be present in the air in order for it to snow?
   a. Nitrogen
   b. Oxygen
   c. Water
   d. Carbon Dioxide

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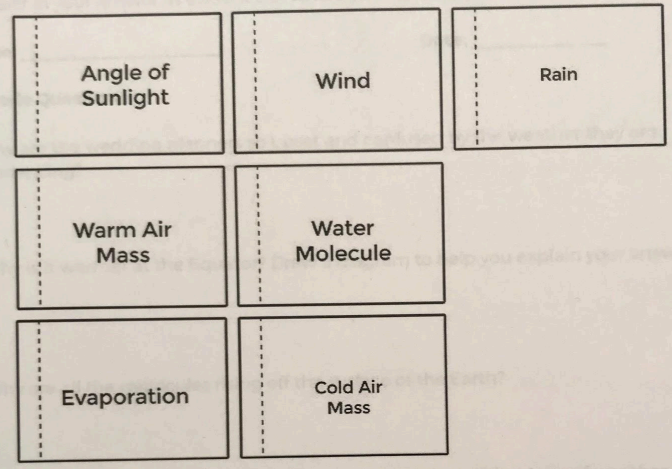
Vocabulary Cards



Vocabulary

- **Warm Air Mass:** a warm body of air that reflects the conditions of the region below it
- **Cold Air Mass:** a cold body of air that reflects the conditions of the region below it
- **Wind:** the perceptible natural movement of the air, created by the movement of air masses
- **Rain:** moisture condensed in the atmosphere that falls visibly in drops
- **Water Molecule:** smallest unit of water, consisting of two hydrogens and an oxygen
- **Angle of Sunlight:** the angle at which the sun hits the Earth
- **Evaporation:** the process of a substance changing from its liquid to its gaseous state

Weather Slides
https://docs.google.com/presentation/d/16DXUmEL5elnBRhJ1aC8CUljuMIfgsCMFTSPo0hEUVW0/edit?usp=sharing

Appendix B
https://scied.ucar.edu/shortcontent/highs-and-lows-air-pressure
link to the website

Questions to Answer:

1. What are the five factors that affect weather?
2. What types of weather could you expect to get when the pressure is low?
3. What types of weather could you expect to get when the pressure is low?
4. What types of pressure systems are common in countries near the ocean?
5. What types of pressure systems are common in countries away from the ocean?

Appendix C
Students will use this website to complete https://eo.ucar.edu/basics/wx_1_b.html

Fill in the definition for each of the following words:
Layers of the Atmosphere
Troposphere

Stratosphere

Mesosphere

Thermosphere

Define the following words:

Atmosphere: _____
_____

Air Pressure: _____
_____

Ozone Layer: _____
_____

Greenhouse Effect: _____
_____

Numbered Heads Questions:

What are the four layers of the atmosphere? What is the Greenhouse effect? What is the ozone layer? What is air pressure?

https://www.youtube.com/watch?v=QeAp3CuGjk8
https://www.youtube.com/watch?v=x_sJzVe9P_8

Appendix D

https://www.youtube.com/watch?v=PfBcGE7_G2U

What is an example of conduction?
What is an example of radiation?
What is an example of convection?
Can all three occur at once? Explain.

Appendix E.

https://quizlet.com/273941181/coriolis-effect-flash-cards/

Application Discussion Questions

1. What is the angle of tilt?
2. What is radiation? When does it occur in the atmosphere?
3. How does earth's tilt affect regional climates?

Appendix F

Day 1 “Nicaragua” VFT Questions

Name:_____ Date:_____

Instructions: To view different countries on the Virtual Field Trip (VFT) website click “menu” on the top left corner of the screen. Then select the country you need to answer the questions.

1. Describe the difference between weather and climate. Use specific examples from the activity you have been working on.

2. What is the Weather/Climate Like in Nicaragua? Use vocabulary words weather and climate in your response.

3. Explain how the Angle of sunlight affects the weather in Nicaragua.

Appendix G

Day 2 “Germany” VFT Questions

Name:_____ Date:_____

Instructions: To view different countries on the Virtual Field Trip (VFT) website click “menu” on the top left corner of the screen. Then select the country you need to answer the questions.

1. Describe the difference between weather and climate. Use specific examples from the activity you have been working on.

2. What is the Weather/Climate Like in Germany? Use vocabulary words weather and climate in your answer.

3. Explain how the Angle of sunlight affects the weather in Germany.

Appendix H

Day 3 “Siberian Tundra” VFT Questions

Name:_____ Date:_____

Instructions: To view different countries on the Virtual Field Trip (VFT) website click “menu” on the top left corner of the screen. Then select the country you need to answer the questions.

1. Describe the difference between weather and climate. Use specific examples from the activity you have been working on.

2. What is the Weather/Climate Like in the Siberian Tundra? Use vocabulary words weather and climate in your answer.

3. Explain how the Angle of sunlight affects the weather in the Siberian Tundra

Appendix I

Rainfall	Nicaragua	Germany	Siberian Tundra
January			
March			
May			
July			
August			
October			
December			
Total			

Questions for Discussion:

The water cycle is an example of what kind of heat transfer?

Discuss some ways that the sun is essential to our ecosystem specifically for regional weather patterns and heat transfer.