THE AMERICAN DREAM SCHOOL Live the Dream	**Unit: 3 – Planet Earth and it's weather patterns**
	Grade/Content: 6PBL (Project Based Learning)
	Teachers: Nataliya Melnyk

Unit Overview:

In Unit 3 on weather and atmosphere we will cover studies that involve physical properties of different states of matter, energy and it's transformations. Students also will be able to learn how energy is released and absorbed in the form of light and heat. These learning topics will be supported by interactive hands- on activities that will provide a context for how weather conditions are produced on planet Earth in the atmosphere and also how weather events affect life in specific regions.

There will be few projects for this unit including booklet on spheres of Earth including atmosphere, hydrosphere, lithosphere and biosphere, poster on layers of the atmosphere, states of matter lab, water cycle booklet, weather sheets completion, hazardous weather conditions newspaper and a video report. By the end of this unit students will take a role of climate scientists and will complete various data- based activities to investigate if climate is changing on our planet due to global warming that is caused by natural processes and human activities (excessive greenhouse gases emission). Lastly, for the project section students will complete a research on climate change and will lead the debate about what actions should be done by people to decrease the rate of global warming. They will be able to gather information based on real scientific facts and data to back up their resolutions.

Additionally, throughout the unit, students also will be using tools to investigate weather in their local areas. They will be responsible for data gathering and pattern analysis to describe weather conditions, make informed predictions, and explain extreme weather events. They will submit their findings to a global database what will give them a chance to become part of the global scientific community.

Essential Questions:
***Questions that are in *ITALIC* will be implemented by using SPRINTT curriculum**

1. *What is the difference between weather and climate?*
2. *How do the spheres of Earth interact?*
3. Which factors influence weather?
4. How do air masses influence local weather?
5. What is air pressure and how does it change as the altitude increases?
6. How can humans prepare for hazardous weather?
7. *How does human activity affect weather?*
8. *What is a greenhouse effect and how does it cause global warming?*
9. *What greenhouse gases can we identify that contribute to global warming?*
10. *How much is the Earth heating up as a result of climate change?*

11. *What is the contribution of natural factors to the warming?*
12. *How do we know, people are accountable for the increase in CO2 levels?*
13. *Do people agree with or deny the science of climate change?*
14. *What are the possible consequences of global warming in different regions of our planet?*
15. *What do we know about the indegenous communities of Polar Regions?*
16. *How much will the global sea level change?*
17. *Will the environments of Earth's Polar Regions change?*
18. *What Earth's land biomes can we identify? Which biomes will be affected by global warming?*
19. *How much should we worry about climate change?*
20. *Has our area experienced changes that can be attributed to global climate change?*
21. *What are realistic solutions to global warming? What can we do on a personal level to slow the process down?*
22. *What is the Paris agreement and does our country need to particilate in it?*
23. *What are the ways to use clear energy in order to reduce the effect of greenhouse gases?*

Length of Unit / Number of Lessons:	**Calendar Dates:** Approximate start and end dates for this unit.
37 lessons	January 31- March 22, 2018

Standards:
* Science content standards that are in **BOLD** and *Italic* will be implemented by using SPRINTT curriculum

New York State P-12 Common Core Learning Standards for Mathematics

6.SP.B.5: Summarize numerical data sets in relation to their context such as by:
6.SP.B.5.A: reporting the number of observations.
6.SP.B.5.B: Describing the nature of the attribute under investigation, including how it was measured and its units of measurements.
6.SP.B.5.C: Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviations), as well as describing any overall pattern and any striking deviations from the overall patter with reference to the context in which data was gathered.
6.SP.B.5.D: Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

New York State P-12 Common Core Learning Standards for ELA/Literacy

RHST.6-8.2: Determine the central ideas or conclusions of a text: provide an accurate summary of the text distinct from prior knowledge or opinions.
RHST.6-8.3: Follow precisely a multistep procedure when carrying out experiments taking measurements, or performing technical tasks.
RHST.6-8.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in specific scientific or technical context relevant to Grades 6-8 texts and topics.
RHST.6-8.5: Integrate quantitative or technical information expressed in words in a text with a version of that

information expressed visually. (e.g. in a flowchart, diagram, model, graph, or table).
WHST.6-8.4: Procedure a clear and coherent writing in which the development organization and style are appropriate to task purpose, and audience.
WHST.6-8.6.8: Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citations.

Middle School Science Standards, NYS Intermediate Level Science, Core Curriculum, Grades 5 - 8
PS. Key Idea 2: Many of the phenomena that we observe on Earth involve interactions among components of air water and land.
PS. Key Idea 3: Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.
PS. Key Idea 4: Energy exists in many forms and when these forms change, energy is conserved.
LE. Key Idea 7: Human decisions and activities have had a profound impact on the physical and living environment.

Major Understandings:
3.1a The substances have characteristics properties. Some of these properties include color, odor, phase at room temperature, density, solubility, heat, and electrical conductivity, hardness, boiling, and freezing points.
3.1h Density can be described as the amount of matter that is in given amount of space. If two objects have equal volume, but one has more mass, the one with more mass is denser.
3.1c The motion of particles helps to explain the phases of matter as well as changes from one phase to another. The phase in which matter depends on the attractive forces among its particles.
3.1d Gases have neither determined shape nor definite volume. Gases assume the shape of a container.
3.1e A liquid has definite volume but takes the shape of the container.
3.1f A solid has definite volume and shape. Particles resist change in position.
3.2a During a physical change a substance keeps its chemical composition and properties. Examples of physical changes include freezing, melting, condensation, boiling, evaporation, tearing and crushing.
4.5a Energy cannot be created or destroyed but only changed from one form to another.
4.1a The sun is the major source of energy for Earth. Other sources of energy include nuclear and geothermal.
2.1a Nearly all the atmosphere is confined to a thin shell surrounding the Earth. The atmosphere is a mixture of gases, including, nitrogen, oxygen, with small amounts of water vapor, and carbon dioxide. The atmosphere is stratified into layers each having distinct properties. Nearly all weather occurs in the lowest layer of the atmosphere.
2.2k Uneven heating of Earths surface is the cause of weather.
2.2j Climate is the characteristic weather that prevails from season to season and year to year.
2.2i Weather describes the conditions of the atmosphere at a given location for a short period of time.

2.1j Water circulates through the atmosphere, lithosphere, and hydrosphere in what is known as the water cycle.
2.2l Air masses form when air remains early stationary over a large section of the Earth's surface and takes on the conditions of temperature and humidity from that location. Weather conditions at a location are determined primarily by temperature humidity, and pressure of air masses over that location.
2.2o Fronts are boundaries between air masses. Precipitation is likely to occur at these boundaries.
2.2p High-pressure systems generally bring fair weather. Low-pressure systems usually bring cloudy, unstable conditions. The general movement of highs and lows is from west to east in the US.
2.2q Hazardous weather conditions include thunderstorms, tornadoes, hurricanes, ice storms, blizzards. Humans can prepare for and respond to these conditions if given sufficient warning.
2.2r Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things.

Primary Content Goals: What are the goals for your content area?

* Content goals that are in **BALD** and *ITALIC* will be covered by using SPRINTT curriculum

- Explain that the causation of weather effects are due to uneven heating of the Earth's surface.
- Define weather as conditions of the atmosphere at a given location for a short period.
- Identify 4 spheres of Earth: atmosphere, hydrosphere, biosphere and lithosphere
- Label the different layers of the Earth's atmosphere: troposphere, stratosphere, mesosphere, thermosphere, exosphere
- Discuss that the sun is the major source of energy for Earth
- Weather patterns are a result of matter and energy interactions in the atmosphere, hydrosphere, and lithosphere.
- Determine that weather conditions at a location are determined primarily by temperature humidity, and pressure of air masses over that location.
- Explain what boundaries are and their importance in causing precipitation.
- Recognize the relationship between the high- and low-pressure systems.
- Construct a graph to depicts local weather phenomena (temperature, humidity, and rain) over a month period.
- Be able to identify topographic maps and read the information given in them.
- ***Investigate climate change and identify if the temperature on our planet changes due to global warming***
- ***Define greenhouse effect and it's significance for our planet***
- ***Identify factors that cause global warming***
- ***Construct a line graph that will show how the average temperature changed over the past 100 years due to global warming***
- ***Predict the main consequences of global warming like global sea level rise, global ice level reduction, environmental changes and extreme weather events occurrence***

- ***Identify Earth's land biomes such as taiga, deciduous forests, grasslands, deserts, tropical rainforests, savannas and the chaparrals and learn about possible changes in some of those biomes due to climate change***
- ***Learn about the environment and population of Polar Zones***
- ***Think of the solutions to a problem on climate change***
- ***Identify clean energy sources that can replace fossil fuels***

Secondary Content Goals: What are the goals for other content areas, if applicable?

- Identify vocabulary related to weather and atmosphere
- Use their English and Spanish language knowledge to comprehend reading materials including scientific worksheets, articles, posters and books
- Use their English/ Spanish writing knowledge and techniques to provide meaningful explanations for the short and open- ended questions on the various scientific content topics.
- Use their oral English/Spanish skills to present information to the class.

Language Goals: How are students listening, speaking, reading and writing?

Productive: Writing and Speaking	**Receptive: Reading and Listening**
Common Core Anchor Standard (RI.1): Cite specific textual evidence when writing or speaking to support conclusions drawn from the text. **Common Core Anchor Standard (W.1)**: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. **Common Core Grade 6 Standard (W.6.1)**: Write arguments to support claims with clear reasons and relevant evidence	**Common Core Anchor Standard (RI.1)**: Read closely to determine what the text says explicitly and to make logical inferences from it. **Common Core Anchor Standard (SL.1)** : Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly persuasively. **Common Core Grade 6 Standard (SL.6.1)** : Engage effectively in range of collaborative discussions (one-on-one, in groups and teacher-led) with diverse partners on grade 6 topics, texts and issues, building on others' ideas and expressing their own clearly.
Key Terms/Vocabulary: Word and student-friendly definition in English and Spanish * Words that are in **BALD** will be covered by using SPRINTT curriculum	**Materials and Resources** What materials are needed? Where can the materials be found? Flag any materials that require extensive prep time.
● Solid- state of matter that is identified by having a definite mas, shape and volume ● Liquid- state of matter that has a definite mass	● Computers ● Binders ● Pens and pencils

and volume, doesn't have a definite shape ● Gas- state of matter that has a definite mass, but indefinite shape and volume ● Freezing- below 32 F ● Melting- to change from a solid to a liquid state (ice- water) ● Condensation- when water collects as droplets on a cold surface when humid air is in contact with it ● Boiling- the action in which water is brought up to the point when bubbles are forming (when the temperature increases) ● Evaporation- the process of water turning from liquid to gas ● Phase Change- a change from one state to another without changing of a chemical composition of a substance ● Particles- a small portion of matter ● Temperature- the degree of heat present in a substance or object ● **Atmosphere- the layer of gases surrounding our planet** ● **Water Cycle- the cycle of processes by which water circulates between Earth's spheres involving precipitation, evaporation, condensation, transpiration and collection** ● **Weather- condition of the atmosphere from day to day at a certain area; weather characteristics: temperature, precipitation, cloud coverage, humidity, air pressure, wind speed** ● **Climate- weather that prevails over certain area from season to season, year to year** ● **Greenhouse effect- trapping of the Sun's warmth in Earth's lower atmosphere due to radiation projected from the sun** ● **Greenhouse gases- number of gases that**	● Rulers ● Science journals ● Poster paper ● Food coloring ● Weather fronts container ● Needles (to make a compass) ● Teaching magnets ● Calculators ● Online interactive activities ● Brainpop videos and activities ● Clay ● Ipads ● Cotton balls ● Poster paper ● Color pencils ● SPRINTT curriculum book ● Any other material students bring for their projects

contribute to the greenhouse effect by absorbing infraded radiation; such gases are carbon dioxide, methane, water vapor, ozone, clorofluorocarbons

- **Global warming- a gradual increase in the overall temperature of the earth's atmosphere due to greenhouse effect**
- **Indegenous community- people and nations that live in the particular area for a long period of time and have a historical continuity**
- **Polar zones- regions of Earth surrounding its geographical poles (North and South Poles)**
- **Biome- a large naturally occuring community of flora and fauna: tundra, rain forest etc.**
- **Humidity- the amount of water vapor in the atmosphere**
- Air Masses- a body of air with uniform temperature, humidity, and pressure
- Precipitation- the process by which rain, snow, sleet or hail fall from the sky
- Front- the area where two different air masses meet
- Cold front- Air moves under the less dense warm air and pushes it up.
- Warm front- warm, less dense air moves over cold dense air and gradually replaces the cold air
- Occluded front- a warm air mass is caught between two colder air masses. The colder air moves under the warmer air pushing it up and then moves forward until it meets a mass that is warmer and pushes it up too.
- Stationary front- a process in which warm and cold air fronts meet and neither one has a force to move up

- High-Pressure system- air sinks slowly down and as it nears good surface, spreads towards area of low pressure
- Low- Pressure System- large systems that surrounds an area of low pressure
- Equator- An imaginary line that runs around the center of the earth halfway between the north and south poles at 0˚ latitude. Divides the Earth into Northern and Southern Hemispheres.
- Prime meridian- An imaginary line that runs from the north pole to the south pole at 0˚ longitude. Divides the Earth into Eastern and Western Hemispheres.
- Latitude- imaginary lines on earth that run parallel to the equator. They run east-west and measure the distance north and south of the equator (˚N or ˚S).
- Longitude- Imaginary lines on earth that run from the north pole to south pole. They run north-south and measure the distance east and west of the prime meridian (˚E or ˚W).
- Compass- navigational instrument for finding direction

Assessments

Project Based Assessment: List two performance based learning activities for this unit. What is the task? What prior knowledge connects to task? What is the objective of the task? What are the procedural components of the task?

* Projects that are in **BALD** will be implemented together with SPRINTT curriculum

- Map construction project
- Spheres of Earth interactive poster
- Layers of the atmosphere poster
- Water cycle brochure

Formal Assessment: List and describe formal assessments (test and quizzes for this unit). If possible, list the possible format for the assessment as well.

- Unit 3 Assessment- 40 MC, 8 Written responses
- 2 quizzes
- Do now: Google classroom assignments (8th grade Intermediate Science Exam review mini- sessions)
- **SPRINTT Assessment: quiz with multiple- choice and open- eded questions to assess students knowledge of the curriculum and climate change topic**

● Earth spheres intercations and examples group work/poster/reflection ● Severe weather conditions newspaper/ ADS video news project ● **Research paper on Earths' polar zones and indegenous people of Polar Regions** ● **Climate change investigation: possible outcomes of global warming** ● **Biomes of our planet brochure** ● **Paris Climate Accord debate: do we need to take an action to decrease the rate of climate change?**	

Sequence of Lessons

Day #	Aim and Objectives
001	**Topic:** Latitude and longitude **Aim:**What is the difference between latitude and longitude? How do we identify latitude and longitude of the certain locations? (double block, 90- minute lesson) **Content Objectives:** SWBAT: define latitude and longitude SWBAT: distinguish between latitude and longitude on a global map SWBAT: apply their knowledge on latitude and longitude while determining assigned points of interest on a global map **Language Objectives:** SWBAT: use their oral language skills to explain their reasoning behind plotting data on latitude and longitude on global map SWBAT: use their writing skills to comprehend and answer questions on latitude and longitude in full sentences
002	**Topic:** Magnetic Compass **Aim:** What is the purpose of magnetic compass? **Content Objectives:** SWBAT: explain that magnetic compass is an instrument containing a magnetized pointer that shows the direction of magnetic north and bearings from it SWBAT: explain 4 directional sides that are globally used to identify the direction or a location of a particular object/ reference points **Language Objective:** SWBAT: use their writing skills to construct meaningful explanations on how use magnetic compass

	SWBAT: use their oral skills to work with peers while constructing a compass by using a plastic bowl with water, scientific magnet and a needle
003	**Topic:**Topographic map introduction **Aim:** What is a topographic map? What do we use topographic maps for? **Content Objectives:** SWBAT: define a map and identify topographic map among other types of maps SWBAT: state the purpose of a topographic map and learn how to read and analyze data from it SWBAT: plot the data on various topographic maps **Language Objective:** SWBAT: use their reading and comprehension skills to understand how to use a topographic map: read & analyze given data; plot points directly on the map
004	**Topic:** Topographic map data plotting & analysis **Aim:** How do we read and plot data on a topographic map? **Content Objectives:** SWBAT: recall what is the main purpose of a topographic map and apply previously acquired skills while reading various topographic maps SWBAT: plot data on topographic map **Language Objective:** SWBAT: use their English/ Spanish language skills to complete written report on topographic maps and plot in various sets of data
005	**Topic:** Isolines **Aim:** What are isolines and what do we use them for? **Content Objectives:** SWBAT: define isoline as a line on a map with the constant value on it SWBAT: draw isolines, isotherms and isobars on topographic maps **Language Objectives:** SWBAT: use their writing skills to complete maps with isolines and answer questions about the purpose of isolines on topographic maps SWBAT: use their writing skills to review questions on topographic maps
006: Project day	**Topic:** Maps **Aim:** How do we apply our knowledge of catrography to design our own map? **Content Objectives:** SWBAT: complete their research on type of map they want to work on and sketch ideas **Language Objectives:** SWBAT: use their reading/ writing skills to complete their research on type of map they decided to work on to display qualitative and quantitative data
007	**Topic:** Spheres of Earth

	Aim: What spheres of Earth can we distinguish? **Content Objectives:** SWBAT: identify spheres of Earth including atmosphere, hydrosphere, lithosphere and biosphere SWBAT: provide real- life examples for each sphere of Earth to show their understanding **Language Objectives:** SWBAT: use their English/ Spanish language reading skills to comprehend the materials on spheres of Earth and complete the table + provide examples on each sphere
008: Project day	**Topic:** Spheres of Earth interactions **Aim:** How do spheres of Earth interact? How do we identify real- life examples that represent spheres of Earth interactions **Content Objectives:** SWBAT: recall spheres of Earth such as lithosphere, biosphere and atmosphere and brainstorm possible interactions between those spheres SWBAT: learn various real- life examples that represent interactions between spheres of Earth **Language Objective:** SWBAT: use their reading and writing skills to understand real- life scenarios on interactions between spheres of Earth and write a poster to conclude what did they learn about
009	**Topic:** Layers of the atmosphere **Aim:**What is the atmosphere and what it is made from? What layers of the atmosphere can you identify? **Content Objectives:** SWBAT: define atmosphere and identify its main characteristics SWBAT: identify the layers of the atmosphere including stratosphere, troposphere, mesosphere and thermosphere, and their distinct properties **Language Objectives:** SWBAT: use their reading skills to comprehend information about the atmosphere and its layers
010: Project day	**Topic:** Spheres of Earth and layers of the atmosphere **Aim:** How do we incorporate our knowledge on spheres of Earth and layers of the atmosphere **Content Objectives:** SWBAT: combine their knowledge on the spheres of Earth and layers of the atmosphere to create an informative poster about previously mentioned topics that they learned about during the week **Language Objectives:** SWBAT use their comprehension skills to search for the relevant information in order to create an informative poster about spheres of Earth and layers of the atmosphere
011	**Topic:** States of matter **Aim:** What states of matter can we identify? **Content Objectives:**

	SWBAT: identify three states of matter inlcuding solid, liquid and gas SWBAT: and describe what happens with the mass, shape and volume in each state **Language Objectives:** SWBAT: using their writing skills to identify different states of matter provided on their cw and explain the properties of each
012	**Topic:** Water cycle introduction **Aim:** What stages of the water cycle can we identify? **Content Objectives:** SWBAT: describe the path that water travels through the surface of Earth SWBAT: explain how water evaporates from Earth's surface, condenses into clouds, and then precipitates back to Earth's surface **Language Objectives:** SWBAT use their writing skills to trace the path of H2O through water cycle and explain what happens at the following stages: evaporation, condensation, precipitation, collection and transpiration SWBAT use their reading and writing skill to complete the explorelearning.com lab on water cycle
013: Project day	**Topic:** Water cycle brochure construction **Aim:** How can we review our knowledge of the water cycle? **Content Objectives:** SWBAT: recall the stages of the water cycle and include them in their brochure SWBAT: describes what happens at each stage of the water cycle in details **Language Objectives:** SWBAT: use their writing skills to contruct explanations about stages of the water cycle on their poster
014	**Topic:** Atmospheric pressure/ weather instruments **Aim:** What is atmospheric pressure and how does it change as the altitude increases? What weather instruments can we distinguish? **Content Objectives:** SWBAT: understand the concept of atmospheric pressure and explain that atmospheric pressure dicreases as the altitude increases SWBAT: identify different weather instruments and state their purposes (anemometer, barometer, thermometer, weather sock etc.) **Language Objectives:** SWBAT: use their reading skills to learn new concepts about atmospheric pressure SWBAT: use their writing skills to label various weather instruments and explain the purpose of each instrument
015	**Topic:** Climate **Aim:** What is climate and what types of climate can we identify on our planet? **Content Objectives:** SWBAT: define climate as weather conditions that prevail in an area in general or over a long period of

	time SWBAT: identify types of climate that can be found around the world (tropical, temperate, polar and arctic) **Language Objectives:** SWBAT: use their English/Spanish reading skills to comprehend the information about climate and its types SWBAT: use their writing skills to create meaningful responses to open- ended higher- order tinking questions on factors that determine climate
016	**Topic:** Weather **Aim:** What is weather and what factors determine it? **Content Objectives:** SWBAT: define weather as a condition of the atmosphere at a place and time as regards temperature, air masses, weather fronts, humidity, air pressure, cloud coverage SWBAT: identify factors that determine weather such as temperature, air pressure, humidity, air masses **Language Objectives:** SWBAT: use their comprehension skills to understand what is weather and explain in a written and oral form what factors determine weather in the local area
017	**Topic:** Weather Factors **Aim:** How can we review the factors that determine weather? **Content Objectives:** SWBAT: identify factors such as temperature, cloud coverage, air pressure, precipitation, humidity that determine weather in the local area SWBAT: review their knowledge of the weather instruments, air pressure and the atmosphere **Language Objectives:** SWBAT: use their oral language skills to communicate with the members of their groups in order to answer questions for the review game on weather SWBAT: use their reading skills to read and takes notes on the different factors that influence weather
018	**Topic:** Quiz **Aim:** How do we assess our knowledge on spheres of Earth, climate & weather, atmospheric pressure and weather instruments? **Content objectives:** SWBAT: assess their knoelwdge on spheres of Earth, climate & weather, atmospheric pressure and weather instruments? **Language objectives:** SWBAT: use their reading, comprehension and writing skills to understand the questions on topics that were covered in unit 3 and write responses to open- ended questions
019	**Topic:** Air mass and weather fronts introduction **Aim:** What is an air mass? What weather fronts can we identify & what types of weather does each type bring?

	Content Objectives: SWBAT: define air mass as a body of air with horizontally uniform temperature, humidity, and pressure SWBAT: determine factors that influence the formation of air masses SWBAT: define what is weather front and identify different types of fronts (warm, cold, stationery and occluded) **Language Objectives:** SWBAT: use their reading skills to learn the information about air masses and their characteristics SWBAT: use their oral skills to communicate and lead the discussion about factors that determine air masses SWBAT: use their reading skills to identify different types of weather fronts
020	**Topic:** Weather fronts **Aim:** What weather fronts can we determine? **Content Objectives:** SWBAT: define air fronts as boundaries between air masses of different temperatures SWBAT: identify types of air fronts such as cold and warm fronts, stationary and occluded front and state what types of weather comes with each previously mentioned front **Language Objective:** SWBAT use their English/Spanish reading and writing skills to comprehend the content on air fronts and write meaningful responses to open ended questions on types of weather that each weather front brings
021	**Topic:** High- and low pressure systems **Aim:** What type of weather is associated with high- and low pressure systems? **Content Objectives:** SWBAT: define high- and low pressure systems and complete Venn diagram to describe similarities and differences between the two systems SWBAT: distinguish between high- and low- pressure systems and state what type of weather does each system bring Language Objective: SWBAT: use their English/ Spanish skills to write a response to how low- and high- pressure systems affect the weather
022: Project day	**Topic:** Weather maps **Aim:** How do we interpret weather maps by using knowledge acquired in unit 3? **Content Objectives:** SWBAT: measure air pressure in high- and low-pressure systems SWBAT: describe typical weather patterns associated with high- and low-pressure systems SWBAT: compare and contrast cold fronts and warm fronts SWBAT: predict weather conditions in a certain area by analyzing weather map (by using explorelearning.com activity) **Language Objectives:**

	SWBAT use their writing skills to draw the circulation of air around high- and low-pressure systems SWBAT use their writing skills to explain how the weather might change as a cold or warm front passes through
023	**Topic:** Hurricanes and tornadoes **Aim:** What factors cause severe weather conditions? How can we identify hurricanes and tornadoes among other types of severe weather conditions ? **Content Objectives:** SWBAT define severe weather condition SWBAT identify hurricanes and tornadoes as severe weather conditions and identify what weather factors lead to them SWBAT explain hurricanes and talk about precautions that should be taken by local population to prevent death & damage SWBAT explain tornadoes and consequences and state precautions and safety measures that should be taken by the affected population **Language Objectives:** SWBAT summarize safety precautions during hurricanes and tornadoes by answering guiding questions
024	**Topic:** Thunderstorms and blizzards **Aim:** How can we identify thunderstorms? What weather conditions cause blizzards and ice storms? **Content Objectives:** SWBAT: identify hurricanes among other severe weather conditions and state what weather factors cause them SWBAT: discuss safety precautions that should be taken into a consideration while living through an intense hurricane SWBAT: identify blizzards and snow storms as severe weather conditions **Language Objectives:** SWBAT: use their writing skills to list things and materials people need to have at their homes during and after hurricanes SWBAT: use their writing skills to create their own safety plan during ice storms and blizzards and share ideas with the group
025: Interim Assessment 3	**Topic:** Interim assessment 3 **Aim:** How do we assess our knowledge on all units that we covered in PBL so far (unit 1: forces and simple machines, unit 2: forces and motion, unit 3: planet Earth and it’s weather patterns) **Content Objectives:** SWBAT: assess their knowledge on units 1,2 and 3 that were covered in PBL class since the beginning of the year **Language Objectives:** SWBAT: use English/ Spanish reading and writing skills to comprehend the questions on units 1,2,3 to assess their science knoewledge and identify areas they need help with

026: Project day	**Topic:** Severe weather condition article **Aim:** How do we write interactive article about severe weather condition event? **Content Objectives:** SWBAT: distinguish between severe weather condition events such as hurricanes, tornadoes, blizzards, snow storms and thunderstorms SWBAT: select severe weather condition event that happened in real life and write an informative article for the perspective science class newspaper **Language Objectives:** SWBAT: discuss within their groups the severe weather condition they pick for their newspaper SWBAT: summarize the information they learned about their condition they picked in their project handout
*** 027: NASA/SPRINTT Double- block (90-minutes lesson)**	**Topic:** Climate change vs. global temperature change **Aim:** How do we recognize global temperature trends changing due to global warming? **Content Objectives:** SWBAT investigate how the weather trends shifted for the past 137 years due to global warming SWBAT draw conclusions on drastic average temperature changes that occurred for the past 20 years SWBAT discuss main factors that contribute to climate change and cause global warming **Language Objectives:** SWBAT record data on temperature average on a line graph, analyze and summarize their findings both orally and then in a paragraph **Resource:** https://www.jpl.nasa.gov/edu/teach/activity/graphing-global-temperature-trends/ **Standards covered in this lesson:** **CC.SCI.5-8.4.P2** *» Intermediate » Science (1999) » Core Curriculum » New York:* Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land. **CC.SCI.5-8.4.P2.2r** *» Intermediate » Science (1999) » Core Curriculum » New York:* Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things. **SL.6.2:** Interpret information presented in diverse media and formats, and explain how it contributes to a topic, text or issue under study. *In this lesson students will explore how atmosphere, hydrosphere and lithosphere interact. As the greenhouse gases due to human activity trap heat in the atmosphere, it causes various changes in weather patterns, average temperatures, global sea ice and global sea level. Humans and living organisms that inhabit land are affected by such changes in a negative way. **Implementation of the particular lesson will give my students the opportunity to:** In this lesson, students get an access to global temperature data that allows them to create a line graph to compare the short- and long- term patterns that are used to determine if global temperature

	is actually rising based on the data provided for 137 years. The main task of this lesson is to let the learners determine if chemical composition (greenhouse gas proportion) of the atmosphere is changing due to intensified greenhouse effect that traps gases and increases the amount of energy radiated by Earth. The online resource that is used for the activity on graphing global temperature trends is also a great tool that allows incorporation of the real- life data for analysis in science classroom. As data takes an important instructional place especially in our class, it provides an opportunity to facilitate learning through improving and differentiating the instruction. Students at the same time practice how to analyze meaningful patterns of information that might be expressed in numbers, images, graphs or words.
*** 028: SPRINTT Three lessons (135-minutes lesson)**	**Topic:** Introduction to Arctic & Antarctic (Frozen Water 1, Introduction to Arctic & Antarctic) **Aim:** How can we describe the environments of Earh's Polar Regions? **Content Objectives:** SWBAT: describe how environmental factors affect everyday life SWBAT: discuss the importance of ice and other environmental factors in the lives of Siberian Yupik people of St. Lawrence Island, Alaska SWBAT: compare and contrast the Arctic and Antarctic **Language Objectives:** SWBAT: use their comprehension and writing skills to record environmental elements from the story on Arctic & Antarctic regions by using interactive website and draw conclusions about how those factors affect people on St. lawrence Island **Resources:** http://www.us.-satellite.net/sprintt// **Standards covered in this lesson:** **CC.SCI.5-8.4.P2.1** *» Intermediate » Science (1999) » Core Curriculum » New York:* Explain how the atmosphere (air), hydrosphere (water), and lithosphere (land) interact, evolve, and change. **CC.SCI.5-8.4.P2.1d** *» Intermediate » Science (1999) » Core Curriculum » New York:* The majority of the lithosphere is covered by a relatively thin layer of water called the hydrosphere. **CC.SCI.5-8.4.P2.2r** *» Intermediate » Science (1999) » Core Curriculum » New York:* Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things. *In this lesson students will learn about how major components of Earths spheres including the atmosphere, hydrosphere and lithosphere evolve in Arctic & Antarctic zones due to climate change (global warming that is caused by the excessive amounts of greenhouse gases in the atmosphere). As Arctic & Antarctic zones are mostly covered by water (ice), students will investigate how the level of ice is reducing due to previously mentioned reasons and how such process affects local population. **Implementation of the particular lesson will give my students the opportunity to:** This lesson will give students the opportunity to explore Earth Polar Regions together with their

	unique environmental factors. They will learn about both: Arctic and Antarctic by using multiple sources such as an account from St. Lawrence Island that is located in Alaska, various images, videos and data sets to analyze. Students will also get a chance to compare and contract environments and style of life that people have in Polar Regions to their own community. By using lessons on Arctic & Antarctic teachers will open the door to understanding of the environmental changes that happen around the world and are directly linked to changes that recently happen in Polar Regions due to global warming.
*** 029: SPRINTT Double- block (90-minutes lesson)/ Project Day**	**Topic:** Western vs. indigenous scientific knowledge (Frozen Water 1, Introduction to Arctic & Antarctic) **Aim:** What is the difference between Indigenous scientific knowledge and Western scientific knowledge? **Content Objectives:** SWBAT: distinguish between Indigenous scientific knowledge and Western scientific knowledge SWBAT: learn new information about the Indigenous people of Polar Regions and compare their culture and lifestyle to the culture and lifestyle that we have in New York **Language Objectives:** SWBAT: use their oral skills to lead a discussion about the differences in Indigenous and Western communities' lifestyles SWBAT: use their writing skills to formulate a conclusion that Indigenous scientific knowledge and Western scientific knowledge work together while it comes to understanding & finding solutions to environmental changes that occur at the specific regions of our planet **Assignment:** Indigenous people of Polar Regions research paper (interactive newspaper project) **Standards covered in this lesson:** **CC.SCI.5-8.4.P2.2i** *» Intermediate » Science (1999) » Core Curriculum » New York:* Weather describes the conditions of the atmosphere at a given location for a short period of time. **CC.SCI.5-8.4.P2.2j** *» Intermediate » Science (1999) » Core Curriculum » New York:* Climate is the characteristic weather that prevails from season to season and year to year. **CC.SCI.5-8.4.P2.2l** *» Intermediate » Science (1999) » Core Curriculum » New York:* Air masses form when air remains nearly stationary over a large section of Earth's surface and takes on the conditions of temperature and humidity from that location. Weather conditions at a location are determined primarily by temperature, humidity, and pressure of air masses over that location. **CC.SCI.5-8.4.P2.2r** *» Intermediate » Science (1999) » Core Curriculum » New York:* Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things. *Previously mentioned benchmarks have a direct relationship to this lesson. Students will compare & contrast Indigenous (based on lifestyle & weather observations and pattern recognition) and Western (based on research & data) scientific knowledge regarding changes that happen in weather patterns including temperature, humidity, air pressure, precipitation amounts in Arctic & Antarctic regions.

	Implementation of the particular lesson will give my students the opportunity to: The implementation of this lesson will be successsful among my students since it will give them an opportunity to learn more (in addition to the previous lesson) about Indigenous communities of the Polar Regions. Most likely majority of my students do not have much understanding of Polar Regions, especially people that live there, their culture, food, knowledge etc. Students will be exposed to the number of video files and images together with the reading passages in order to help them to understand the difference between Indigenous and Western scientific knowledge and how those two fields work together regarding climate change problem solution.
*** 030: SPRINTT Double- block (90-minutes lesson)**	**Topic:** Ice in Earth's Polar Regions (Frozen Water 2, Glaciers, Sea Ice, and Climate Change) **Aim:** How is ice in Earth's Polar Regions changing? **Content Objectives:** SWBAT: compare and contrast sea ice and glaciers SWBAT: examine the satellite images of sea ice in the Arctic and identify if the sea ice level is changing SWBAT: describe changes occuring in Polar Regions due to Global Climate Change **Language Objectives:** SWBAT: usetheir reading skills to analyze satellite images that display how Earth's Polar Region's ice is changing and explain in written form what might be possible reasons for it **Resources:** http://www.us-satellite.net/sprintt/ **Standards covered in this lesson:** **CC.SCI.5-8.4.P2.1** *» Intermediate » Science (1999) » Core Curriculum » New York:* Explain how the atmosphere (air), hydrosphere (water), and lithosphere (land) interact, evolve, and change. **CC.SCI.5-8.4.P2.1d** *» Intermediate » Science (1999) » Core Curriculum » New York:* The majority of the lithosphere is covered by a relatively thin layer of water called the hydrosphere. **CC.SCI.5-8.4.P2.2r** *» Intermediate » Science (1999) » Core Curriculum » New York:* Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things. **CC.SCI.5-8.4.P2.2k** *» Intermediate » Science (1999) » Core Curriculum »* New York: The uneven heating of Earth's surface is the cause of weather. *Students will examine changes that take place in the lithosphere that is mostly covered by ice in Arctic & Antarctic regions due to climate change. Climate change will be seen as the result of natural processes (volcanic eruptions, living organisms metabolism) and human activity (infrastracture) that increase the amount of greenhouse gases. **Implementation of the particular lesson will give my students the opportunity to:** In this lesson students will be exposed to Earth's Polar Regions with their environments in more detail. They will learn about the specific environmental factors that prevail in those regions from

	season to season, year to year such as the amount of sunlight, day length, sea ice coverage, yearly temperature averages etc. Teachers also will get a chance to introduce changes in sea ice concentrations in Arctic and Antarctic that occur seasonally and due to climate change.
*** 031: SPRINTT Single block (45 minutes lesson)**	**Topic:** Investigating the relationship between glaciers, sea ice and sea level (Frozen Water 2, Glaciers, Sea Ice, and Climate Change) **Aim:** What is the relationship between glaciers, sea ice and sea level? **Content objectives:** SWBAT: investigate the process of sea ice melting and ice sheets/glacier melting on sea ice levels SWBAT: use interactive website based on real- life data to to learn about glaciers, sea ice and climate change and also about flobal effects of melting ice **Language objectives:** SWBAT: use their writing skills to list multiple examples of climate change that Alaska Natives are experiencing based on the informative video SWBAT: use their oral skills to discuss the difference between sea ice and glaciers together with the difference in their melting processes **Resources:** http://www.us-satellite.net/sprintt/ **Standards covered in this lesson:** **CC.SCI.5-8.4.P2.1** *» Intermediate » Science (1999) » Core Curriculum » New York:* Explain how the atmosphere (air), hydrosphere (water), and lithosphere (land) interact, evolve, and change. * This particular benchmark will be covered by using lab activity with ice cubes and water in a beaker for students to see the possible outcome of global sea level change due to global sea ice melting process. **Implementation of the particular lesson will give my students the opportunity to:** In the previous lesson students learned about Arctic & Antarctic regions, sea ice and glaciers. In this lab they will get a chance to investigate the relationship between glaciers, sea ice and global sea level. Thus, as students already know, the North Pole is almost always covered with sea ice. On the South Pole, sea ice is surrounding the continent. However, due to changes in temperatures because of global warming, ice glaciers that cover or surround Poles continents slide on meltwater, flow into the oceans where they turn into icebergs. Icebergs at the same time have a higher tendency to melt due to warmer temperatures. This process becomes a reason for the global sea ice level change (reduction). In this lab students will use a beaker together with ice cubes to measure the level of water in that beaker before and after ice melting process. They will draw conclusions about changes in sea ice level and will share thoughts on possible consequences for our planet.
*** 032: SPRINTT**	**Topic:** Biomes on planet Earth/ tundra biome (Frozen Land 1, The Tundra Biome) **Aim:** What are characteristics of the tundra biome?

Double- block (90-minutes lesson)	**Content Objectives:** SWBAT: describe the climate and biological characteristics of the tundra biome SWBAT: compare the tundra to other biomes SWBAT: describe changes related to Earth's biomes attributed to Global Climate Change **Language Objectives:** SWBAT: use interactive website to explore the tundra biome in both the Arctic and Antarctic and will use their writing skills to record notes based on what they see **Resources:** http://www.us.-satellite.net./sprintt/ **Standards covered in this lesson:** **CC.SCI.5-8.4.P2.1d** *» Intermediate » Science (1999) » Core Curriculum » New York:* The majority of the lithosphere is covered by a relatively thin layer of water called the hydrosphere. **CC.SCI.5-8.4.P2.2r** *» Intermediate » Science (1999) » Core Curriculum » New York:* Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things. **CC.SCI.5-8.4.P2.2k » *Intermediate » Science (1999) » Core Curriculum »*** New York: The uneven heating of Earth's surface is the cause of weather. *Students will determine weather patterns in Earth biomes that are located in different regions of our planet and receive various amounts of Suns energy due to their location. **Implementation of the particular lesson will give my students the opportunity to:** In this lesson we will talk about our planet Earth that has many biomes including tundra, taiga, deciduous forest, grassland, desert, tropical forest, savannah and chapparal. Students were not previously exposed to this information and implementing a lesson on biomes will provide them a great opportunity to learn about the environmental factors of each and explore tundra as the coldest biome on Earth. As the tundra is considered to inhospitable due to little precipitation, seasonal variations and extreme weather conditions such as high- speed winds, low temperatures and predominant ice and snow throughout a year, it will be fascinated for students to learn about living organisms that inhabit it. Lastly, the students will gain understanding of changes that are related to Earth's biomes attributed to Global Climate Change.
*** 033: SPRINTT Double- block (90-minutes lesson)**	**Topic:** Permafrost **Aim:** What is permafrost and what are some of the consequences of premafrost thawing **Content Objectives:** SWBAT: describe the characteristics of permafrost SWBAT: analyze data to identify areas of permafrost SWBAT: explain the consequences of melting permafrost to the tundra biome **Language Objectives:** SWBAT: observe teachers demonstration to understand permafrost and answer open- ended questions

	about how permafrost looks during different seasons SWBAT: learn abour permafrost types and write a paragraph on their prediction of how permafrost map will look in the future if the Earth will continue to warm **Resources:** http://www.us.-satellite.net./sprintt/ **Standards covered in this lesson:** **CC.SCI.5-8.4.P2.1** *» Intermediate » Science (1999) » Core Curriculum » New York:* Explain how the atmosphere (air), hydrosphere (water), and lithosphere (land) interact, evolve, and change. **CC.SCI.5-8.4.P2.1d** *» Intermediate » Science (1999) » Core Curriculum » New York:* The majority of the lithosphere is covered by a relatively thin layer of water called the hydrosphere. **CC.SCI.5-8.4.P2.2r** *» Intermediate » Science (1999) » Core Curriculum » New York:* Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things. * Students will learn about another example of interaction between spheres of Earth by seeing how a thick layer of frozen soil in Arctic & Antarctic regions is evolving & changing due to global warming that at the same time is caused by changes in greenhouse gases level in our atmosphere (land & water & air interaction). **Implementation of the particular lesson will give my students the opportunity to:** In this lesson students will get a chance to continue studying the effect of global warming on Arctic's tundra. For the first time in science class they will learn the new term permafrost that stands for a thick layer of frozen Earth that lays below the Arctic's tundra surface. As the Arctic is undergoing global warming, the permafrost will thaw in larger amounts over time what will lead to negative consequences like problems for the native vegetation, animals and local population. The other goal while introducing this topic is to allow learners to investigate a model of permafrost together with permafrost 'borehole' data. It will lead students to determination of the contributory effect of permafrost in greenhouse gases concentration increasing in the atmosphere.
*** 034: SPRINTT Three lessons (135-minutes lesson)**	**Topic:** Greenhouse effect & greenhouse effect gases (Frozen Land 3, Greenhouse Gases) **Aim:** What are greenhouse gases? Can they contribute to global climate change? **Content Objectives:** SWBAT: list Earth's major greenhouse gases and their natural and human- made sources SWBAT: analyze graphs to examine changes in greenhouse gases SWBAT: relate thawing permafrost to atmospheric greenhouse gases **Language Objectives:** SWBAT: use their oral skills to discuss examples of ways that scientists learn about past climate SWBAT: write an explanation about the contribution of greenhouse gases to global warming **Resources:** http://www.us.-satellite.net./sprintt/

	Standards covered in this lesson: **CC.SCI.5-8.4.P2.2r** *» Intermediate » Science (1999) » Core Curriculum » New York:* Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things. *Students will summarize negative effect of greenhouse gases on our planet & its weather patterns by putting all pieces of information from previous lessons together. They will discuss changes in Arctic & Antarctic regions, drastic increase in global temperature averages and possible warming effects for all Earth's biomes. **Implementation of the particular lesson will give my students the opportunity to:** In this lesson students will continue their investigation of the greenhouse effect and greenhouse gases in particular. As they learned previously, those greenhouse gases are present in Earth's atmosphere and include CO2, methane, water vapor, NO2 and CFC's. This final lesson will allow students to summarize their knowledge on Earth's past climate history and changes that occur in global temperatures, Arctic and Antarctic regions, and worldwide weather patterns overall due to the excessive amount of the previously mentioned greenhouse gases.
*** 035:** **Climate Change/ SPRINTT**	**Topic:** Paris Climate Accord vs. global warming resolution **Aim:** Should we take any actions regarging Global Climate Change? What contributions our country can make to solve the problem on climate change? **Content Objectives:** SWBAT: learn about Paris Climate Accord and its contribution to solve the problem on global warming SWBAT: discuss the importance of the U.S. contribution to work on climate change rate reduction SWBAT: state their opinions about what actions should be taken politically and economically into a consideration in order to reduce the rate of global warming **Language Objectives:** SWBAT: use their oral skills to lead the debate about the position of our country regarding Paric Climate Accord **Resources:** http://www.us.-satellite.net./sprintt// **Standards covered in this lesson:** **CC.SCI.5-8.4.P2.2r** *» Intermediate » Science (1999) » Core Curriculum » New York:* Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things. *Students will draw conclusions about list of actions that should be taken by people across the world to reduce the intensity of greenhouse effect due to infrastracture.

	Implementation of the particular lesson will give my students the opportunity to: As 6th graders don't have much knowledge about climate change, they do not give much importance to the resolutions and actions that should be taken by humans in order to reduce the rate of global warming. This lesson will give them the opportunity to summarize their knowledge on worldwide changes that happen due to the excessive greenhouse effect. Teachers will also get a chance to introduce Paris Climate Accord by assigning the reading article and a video to analyze. Students at the same time will take learning process in their hands while leading a debate about our countrys' membership in the Accord and possible contribution to solve the problem with global warming. Final outcome of the lesson will be teaching students how to express their opinion and back it up by real- life scientific facts.
*** 036: SPRINTT assessment**	**Topic:** SPRINTT assessment **Aim:** How do we assess our knowledge on climate change and global warming? **Content Objectives:** SWBAT: apply their knowledge on climate change while taking SPRINTT assessment **Language Objectives:** SWBAT: use their reading, ariting and comprehensions skills while working on multiple- choice and open- ended questions to assess their knowledge of SPRINTT curriculum

Calendar: Unit 3/ SPRINTT

Monday	Tuesday	Wednesday	Thursday	Friday
January 22, 2018	**January 23, 2018**	**January 24, 2018**	**January 25, 2018**	**January 26, 2018**
Topic: Latitude and longitude	Topic: Magnetic compass	Topic: Topographic map introduction	Topic: Topographic map data plotting & analysis	Topic: Isolines
January 29, 2018	**January 30, 2018**	**January 31, 2018**	**February 1, 2018**	**February 2, 2018**
Topic: Maps & individual project: map design	Topic: Spheres of Earth	Topic: Spheres of Earth interactions	Topic: Layers of the atmosphere	Topic: Spheres of Earth & layers of the atmosphere project introduction
February 5, 2018	**February 6, 2018**	**February 7, 2018**	**February 8, 2018**	**February 9, 2018**
Topic: States of matter	Topic: Water cycle introduction	Topic: Water cycle brochure project introduction	Topic: Atmospheric pressure/ weather instruments	Topic: Climate
February 12, 2018	**February 13, 2018**	**February 14, 2018**	**February 15, 2018**	**February 16- 26, 2018**
Topic: Weather	Topic: Weather factors	Topic: Unit 3/ quiz	Data Day, no school for students	Mid- winter break
February 26, 2018	**February 27, 2018**	**February 28, 2018**	**March 1, 2018**	**March 2, 2018**
Topic: Air masses &	Topic: Weather fronts	Topic: High- and low-	Topic: Weather maps	Topic: Hurricanes and

weather fronts introduction		pressure systems	interpretation	tornadoes
March 5, 2018	**March 6, 2018**	**March 7, 2018**	**March 8, 2018**	**March 9, 2018**
Topic: Thunderstorms and blizzards	Topic: Interim Assessment 3	Topic: Severe weather condition article project	Topic: Climate vs. global temperature change *(**NASA/SPRINTT**)	Topic: Introduction to Arctic & Antarctic *(**SPRINTT**)
March 12, 2018	**March 13, 2018**	**March 14, 2018**	**March 15, 2018**	**March 16, 2018**
Topic: Introduction to Arctic & Antarctic (continued) *(**SPRINTT**)	Topic: Western vs. Indigenous scientific knowledge *(**SPRINTT**)	Topic: Investigating the relatiosnhip between glaciers, sea ice and sea level *(**SPRINTT**)	Topic: Biomes/ Tundra *(**SPRINTT**)	Topic: Permafrost *(**SPRINTT**)
March 19, 2018	**March 20, 2018**	**March 21, 2018**	**March 22, 2018**	**March 23, 2018**
Topic: Greenhouse effect vs. greenhouse gases *(**SPRINTT**)	Topic: Greenhouse effect vs. greenhouse gases (continued) *(**SPRINTT**)	Topic: Paris Climate Accord vs. global warming resolution *(**SPRINTT**)	Topic: SPRINTT Assessment	Topic: