Youngstown City Schools
2nd Grade Curriculum Map
Science

Science Inquiry and Applications

During the years of PreK to grade 4, all students must develop the ability to:

- ***Observe and ask questions about the natural environment;***
- ***Plan and conduct simple investigations;***
- ***Employ simple equipment and tools to gather data and extend the senses;***
- ***Use appropriate mathematics with data to construct reasonable explanations;***
- ***Communicate about observations, investigations and explanations; and***
- ***Review and ask questions about the observations and explanations of others.***

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August/September	
Content Statements	**Instructional Practices**
Earth and Space Science (ESS)	**See Model Curriculum**
The Atmosphere Long and short term weather changes occur due to changes in energy (continues throughout the entire year) • Changes in energy affect all aspects of weather, including temperature, precipitation amount and wind.	**In all investigations, it is understood that the teacher is the facilitator and the student is the investigator doing the investigations. It is advisable to limit the whole-class demonstrations where the teacher is the doer and the student is the observer. The roles are to be reversed; teacher as observer, student as doer.** Use observation, inquiry, research and graphic organizers to gather and report weather. Document observations over time. • Data Folders • Journals
Life Science (LS)	
Interactions within Habitats Living things cause changes on Earth**.** • Living things function and interact with their physical environment • Living things cause changes in the environments where they live; the changes can be very noticeable or slightly noticeable, fast or slow.	Plan and conduct investigations that will illustrate the impact of living things on the environment. • Virtual investigations • Create composts • Ant farms Make connections between classroom investigations and what is happening in nature.
Some kinds of individuals that once lived on Earth have completely disappeared, although they were something like others that are alive today. • Living things that once lived on Earth no longer exist; their basic needs were no longer met.	Examine fossils to determine similarities and differences between extinct and existing organisms. Explore and compare a vast array of organisms both extinct and existing (extant). Create models of fossils in order to develop an understanding of their scientific value.

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October	
Content Statements	**Instructional Practices**
Earth and Space Science (ESS)	**See Model Curriculum**
The Atmosphere Long and short term weather changes occur due to changes in energy (continues throughout the entire year) • Changes in energy affect all aspects of weather, including temperature, precipitation amount and wind.	**In all investigations, it is understood that the teacher is the facilitator and the student is the investigator doing the investigations. It is advisable to limit the whole-class demonstrations where the teacher is the doer and the student is the observer. The roles are to be reversed; teacher as observer, student as doer.** Use observation, inquiry, research and graphic organizers to gather and report weather. Document observations over time. • Data Folders • Journals
Life Science (LS)	
Interactions within Habitats Living things cause changes on Earth**.** • Living things function and interact with their physical environment • Living things cause changes in the environments where they live; the changes can be very noticeable or slightly noticeable, fast or slow.	Plan and conduct investigations that will illustrate the impact of living things on the environment. • Virtual investigations • Create composts • Ant farms Make connections between classroom investigations and what is happening in nature.
Some kinds of individuals that once lived on Earth have completely disappeared, although they were something like others that are alive today. • Living things that once lived on Earth no longer exist; their basic needs were no longer met.	Examine fossils to determine similarities and differences between extinct and existing organisms. Explore and compare a vast array of organisms both extinct and existing (extant). Create models of fossils in order to develop an understanding of their scientific value.

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November/December	
Content Statements	**Instructional Practices**
Earth and Space Science (ESS)	**See Model Curriculum**
The Atmosphere Long and short term weather changes occur due to changes in energy (continues throughout the entire year) • Changes in energy affect all aspects of weather, including temperature, precipitation amount and wind.	**In all investigations, it is understood that the teacher is the facilitator and the student is the investigator doing the investigations. It is advisable to limit the whole-class demonstrations where the teacher is the doer and the student is the observer. The roles are to be reversed; teacher as observer, student as doer.** Use observation, inquiry, research and graphic organizers to gather and report weather. Document observations over time. • Data Folders • Journals
Life Science (LS)	
Interactions within Habitats Living things cause changes on Earth**.** • Living things function and interact with their physical environment • Living things cause changes in the environments where they live; the changes can be very noticeable or slightly noticeable, fast or slow.	Plan and conduct investigations that will illustrate the impact of living things on the environment. • Virtual investigations • Create composts • Ant farms Make connections between classroom investigations and what is happening in nature.
Some kinds of individuals that once lived on Earth have completely disappeared, although they were something like others that are alive today. • Living things that once lived on Earth no longer exist; their basic needs were no longer met.	Examine fossils to determine similarities and differences between extinct and existing organisms. Explore and compare a vast array of organisms both extinct and existing (extant). Create models of fossils in order to develop an understanding of their scientific value.

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January	
Content Statements	**Instructional Practices**
Earth and Space Science (ESS)	**See Model Curriculum**
The Atmosphere Long and short term weather changes occur due to changes in energy (continues throughout the entire year) • Changes in energy affect all aspects of weather, including temperature, precipitation amount and wind.	**In all investigations, it is understood that the teacher is the facilitator and the student is the investigator doing the investigations. It is advisable to limit the whole-class demonstrations where the teacher is the doer and the student is the observer. The roles are to be reversed; teacher as observer, student as doer.** Use observation, inquiry, research and graphic organizers to gather and report weather. Document observations over time. • Data Folders • Journals
Physical Science (PS)	
Changes in Motion Forces change the motion of an object • Motion can increase, change direction or stop depending on the force applied. • The change in motion of an object is related to the size of the force. • Some forces act without touching, such as using a magnet to move an object or objects falling to the ground.	Design and construct a device to move an object from one position to another without touching it. Predict and justify which device will work most effectively. Plan and implement a scientific experiment to explore how to change how something is moving. • Push, pull, speeding up, slowing down, changing directions, stopping. Structured play exploring the movement of objects. Predict the changes in motion that a moving object or an object at rest experiences when acted on by a force.

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February	
Content Statements	**Instructional Practices**
Earth and Space Science (ESS)	**See Model Curriculum**
The Atmosphere Long and short term weather changes occur due to changes in energy (continues throughout the entire year) • Changes in energy affect all aspects of weather, including temperature, precipitation amount and wind.	**In all investigations, it is understood that the teacher is the facilitator and the student is the investigator doing the investigations. It is advisable to limit the whole-class demonstrations where the teacher is the doer and the student is the observer. The roles are to be reversed; teacher as observer, student as doer.** Use observation, inquiry, research and graphic organizers to gather and report weather. Document observations over time. • Data Folders • Journals
Physical Science (PS)	
Changes in Motion Forces change the motion of an object • Motion can increase, change direction or stop depending on the force applied. • The change in motion of an object is related to the size of the force. • Some forces act without touching, such as using a magnet to move an object or objects falling to the ground.	Design and construct a device to move an object from one position to another without touching it. Predict and justify which device will work most effectively. Plan and implement a scientific experiment to explore how to change how something is moving. • Push, pull, speeding up, slowing down, changing directions, stopping. Structured play exploring the movement of objects. Predict the changes in motion that a moving object or an object at rest experiences when acted on by a force.

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March	
Content Statements	**Instructional Practices**
Earth and Space Science (ESS)	**See Model Curriculum**
The Atmosphere Long and short term weather changes occur due to changes in energy (continues throughout the entire year) • Changes in energy affect all aspects of weather, including temperature, precipitation amount and wind. _____ The atmosphere is made up of air . • Air has properties that can be observed and measured. The transfer of energy in the atmosphere causes air movement, which is felt as wind. Wind speed and direction can be measured.	**In all investigations, it is understood that the teacher is the facilitator and the student is the investigator doing the investigations. It is advisable to limit the whole-class demonstrations where the teacher is the doer and the student is the observer. The roles are to be reversed; teacher as observer, student as doer.** Use observation, inquiry, research and graphic organizers to gather and report weather. Document observations over time. • Data Folders • Journals Create and construct devices to gather data concerning the weather. • Rain gauge • Thermometers • Weather vanes • Wind socks • Barometers Test and evaluate devices. Provide opportunities for scientific discussion and reflection. Facilitate investigations to illustrate how weather change is a result of energy changes. Plan and implement experiments that illustrate the properties of air.

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April	
Content Statements	**Instructional Practices**
Earth and Space Science (ESS)	**See Model Curriculum**
The Atmosphere Long and short term weather changes occur due to changes in energy (continues throughout the entire year) • Changes in energy affect all aspects of weather, including temperature, precipitation amount and wind. Water is present in the air • Water is present in the air as clouds, steam, fog, rain, ice, snow, sleet or hail. When water in the air cools (change of energy), it forms small droplets of water that can be seen as clouds. Water can change from liquid to vapor in the air and from vapor to liquid. The water droplets can form into raindrops. Water droplets can change to solid by freezing into snow, sleet or hail. Clouds are moved by flowing air.	**In all investigations, it is understood that the teacher is the facilitator and the student is the investigator doing the investigations. It is advisable to limit the whole-class demonstrations where the teacher is the doer and the student is the observer. The roles are to be reversed; teacher as observer, student as doer.** Use observation, inquiry, research and graphic organizers to gather and report weather. Document observations over time. • Data Folders • Journals Create and construct devices to gather data concerning the weather. • Rain gauge • Thermometers • Weather vanes • Wind socks • Barometers Test and evaluate devices. Provide opportunities for scientific discussion and reflection. Facilitate investigations to illustrate how weather change is a result of energy changes. Plan and implement experiments to investigate what factors contribute to evaporation and condensation. Examine the characteristics of clouds and how they relate

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May/June	
Content Statements	**Instructional Practices**
Earth and Space Science (ESS)	**See Model Curriculum**
The Atmosphere Long and short term weather changes occur due to changes in energy (continues throughout the entire year) • Changes in energy affect all aspects of weather, including temperature, precipitation amount and wind. Water is present in the air • Water is present in the air as clouds, steam, fog, rain, ice, snow, sleet, or hail. When water in the air cools (change of energy), it forms small droplets of water that can be seen as clouds. Water can change from liquid to vapor in the air and from vapor to liquid. The water droplets can form into raindrops. Water droplets can change to solid by freezing into snow, sleet, or hail. Clouds are moved by flowing air.	**In all investigations, it is understood that the teacher is the facilitator and the student is the investigator doing the investigations. It is advisable to limit the whole-class demonstrations where the teacher is the doer and the student is the observer. The roles are to be reversed; teacher as observer, student as doer.** Use observation, inquiry, research and graphic organizers to gather and report weather. Document observations over time. • Data Folders • Journals Create and construct devices to gather data concerning the weather. • Rain gauge • Thermometers • Weather vanes • Wind socks • Barometers Test and evaluate devices. Provide opportunities for scientific discussion and reflection. Facilitate investigations to illustrate how weather change is a result of energy changes. Plan and implement experiments to investigate what factors contribute to evaporation and condensation. Examine the characteristics of clouds and how they relate to various types of weather.

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Resources

- Thermometers
- Rain Gauge
- Measuring Tools
- Scales
- Journals
- Hair Dryer
- Materials for composting
- Various organisms for observations (ant farms for example)
- Materials for fossil investigations
- Various magnets

Web Sites:

- United Streaming
- The Weather Channel
- Brainpopjr.com