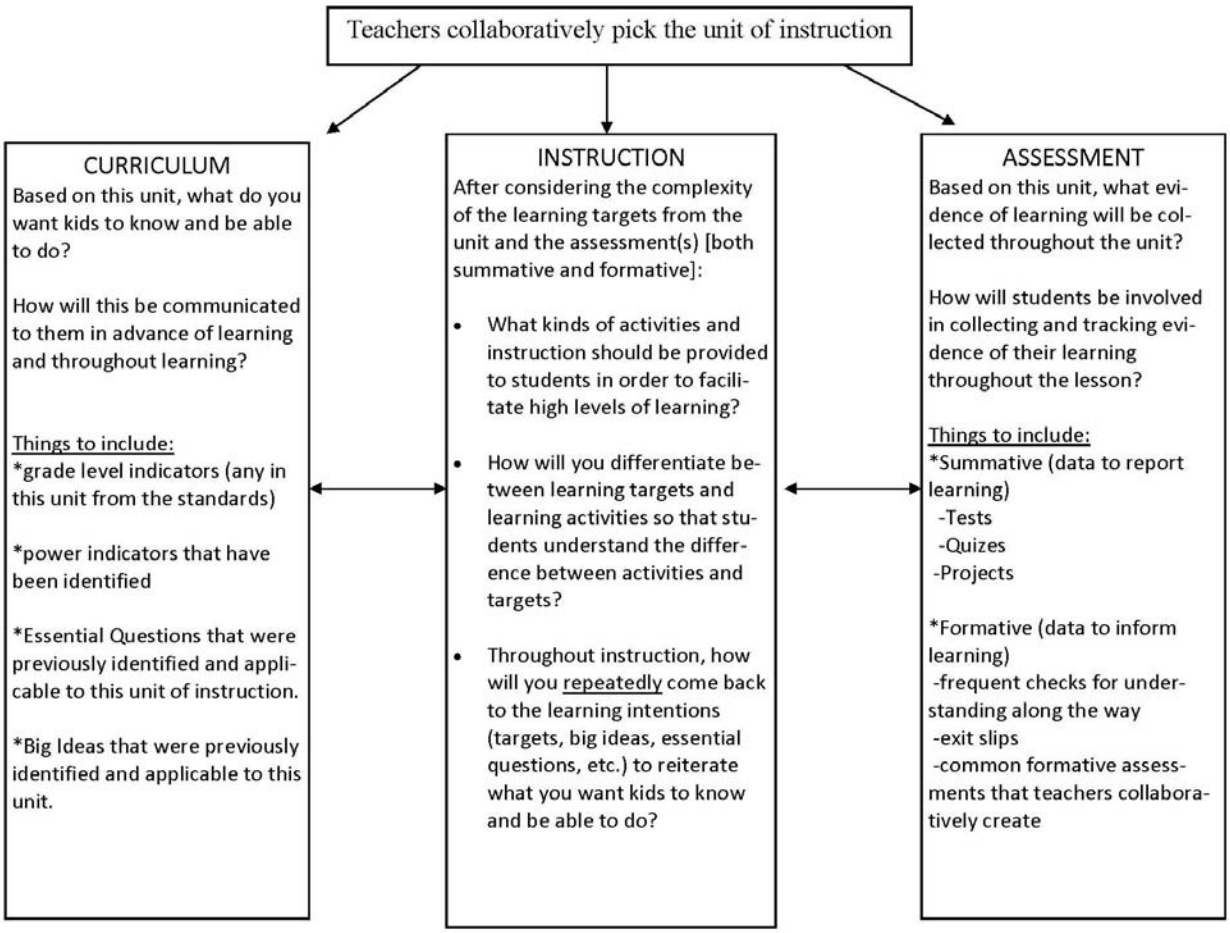
Olmsted Falls Schools: Unit Design Framework

The purpose of the lesson planning framework is to act as a guide for Olmsted Falls Educators as they collaboratively plan units of instruction. The framework attempts to incorporate best practices from the research and couple these with the professional development concepts that Olmsted Falls Educators have taken part in.

Academic content standards and the learning targets that comprise the standards come to life for teachers and students when they are incorporated into a unit of instruction. Teachers work in teams to ensure the learning intentions are the same in corresponding grade levels and subject areas. Teaching the same targets creates the opportunity to collaboratively design common formative assessments that can be collaboratively discussed throughout the instructional unit with fellow teachers. In addition, it allows teachers to design reliable and valid summative assessments that can be used to measure learning at the end of the instructional unit and use the results for future planning.

Ultimately the unit design framework should be used by teachers for the purpose of instructional alignment. The learning targets should be clear to students before and during instruction and they should be aligned with the assessments students will experience. The last step in the alignment process occurs when the learning targets and assessments are consciously aligned with the instruction and classroom activities.

Unit Planning Graphic Linking Prof. Dev. Concepts in Olmsted Falls City Schools



Graphic created by Jim Lloyd and used by Olmsted Falls City Schools' Teachers

Subject: Science 6th Grade **Unit: Weather – Ch. 1-The Atmosphere**

Part I: Clarity of Learning Targets

What are the grade level indicators that go with this unit? Place a star next to the grade level indicators that are Power Indicators. Are the indicators in student friendly language? Place the level of Bloom's Taxonomy next to each Power Indicator.

7-5. Make simple weather predictions based on the changing cloud types associated with frontal systems.

Power - I can make weather predictions based on changing cloud types associated with fronts. (Conceptual, Understand)

7-6. Determine how weather observations and measurements are combined to produce weather maps and that data for a specific location at one point in time can be displayed in a station model.

Power - I can determine how weather, observations, and measurement are displayed in a station model. (Factual, Analyze)

7-7. Read a weather map to interpret local, regional and national weather.

Power - I can read a weather map to interpret local, regional, and national weather. (Conceptual, Understand)

7-9. Describe the connection between the water cycle and weather-related phenomenon (e.g., tornadoes, floods, droughts and hurricanes).

Power - I can describe the water cycle and its connection to climate. (Procedural, Apply)

What are the Big Ideas that go with this unit?

Weather constantly changes.

What are the Essential Questions that go with this unit?

How do environmental changes help predict changes in the weather?

What strategies will we use in order to make learning targets clearer for all students, before, during and after instruction? How will you communicate the learning indicators to students?

- Learning targets posted in the classroom – discussed before and during lessons
- Essential question discussed throughout the unit – learning targets are connected to essential question
- Teacher will provide the students with check points (manageable targets that lead up to the power indicators)

Part II: Feedback and Assessments (Formative and Summative)

How will we provide students with feedback throughout the unit?

What formative assessments will we use? (Non-graded assignments that check for understanding and provide feedback to the students) Incorporate the 7 Strategies of Assessment for Learning here.

- Pre-assessment: The students will be shown weather forecast clips 2-3 times per week throughout the unit. The teacher will guide the class to focus on a particular part of the forecast. The class will discuss the weather forecasts.
- The students will answer planned questions related to the checkpoints. The students will self-assess their level of understanding for each check point based on their answers.
- The students will be able to make corrections to their formative assessments and change their checkpoint ratings.

How will students be involved with keeping track of their own learning progress (note—this is different than tracking points for a grade)?

1. The students will monitor their progress using a thermometer with learning target checkpoints. The students will self assess their level of understanding using a rating scale.

Rating Scale:
90-85 = HOT
84-75 = WARM
74-65 = MILD
64-33 = CHILLY
32 and below = ICE COLD

What summative assessments will we use? (Graded, evaluative assessments)

Chapter 1:

- WS 57 Air Pressure
- Chapter 1 Test

Chapter 2:

- Relative humidity WS
- Chapter 2 Test

Chapter 3:

- Predicting the Weather WS (202)
- Chapter 3, Sections 1 and 2 Quiz (Created on 2/14/11 and saved in the common folder)

Final Assessment:

- Weather forecast

Part III: Instruction and Student Activities

What instructional and student activities will we use for this unit? These activities should directly align with the indicators and assessments.

Chapter 1, Section 1 Check Point:

- The atmosphere is important to living things.

-Discover activity page 6
-Pg. 9 – *Note: The why part is very important
-Evidence for self-assessment: In your own words, explain the importance of the atmosphere. (See answer on pg. 9). The students may work with a partner to answer the above question. Students may use their book for assistance. The teacher will go over the correct answer (5 points) with the class and students will self assess – record assessment on thermometer.

Chapter 1, Section 2 Check Point:

- Air has mass (formative for this section?)
- Air has density
- Air has pressure
- Altitude affects air pressure and density

-Evidence for self-assessment: Page 11 questions – The students will answer the questions self assess – record assessment on thermometer.
-Summative: WS 57 Air Pressure - Students can change their rating after completing the worksheet.

Chapter 1, Section 3 Check Point:

- Weather occurs in the troposphere

-Evidence for self assessment: Class discussion

Chapter 1, Section 4 Check Point:

- Human behavior affects weather

-Evidence for self assessment: Class discussion (Science and Society pg. 28)

Summative Assessment: Chapter 1 Test

Chapter 2, Section 1 Check Point:

- Energy is transferred from the sun to Earth by electromagnetic waves

-Brain pop
-Evidence for self-assessment: How does the greenhouse effect affect life on Earth? (pg. 39)
-Evidence for self-assessment: How might conditions on Earth be different without the greenhouse effect? (pg. 39)

Chapter 2, Section 2 Check Point:

- Heat is transferred three ways (Conduction, Convection, and radiation)

-Evidence for self-assessment: Worksheet 122 Heat transfer – The students will complete the worksheet, grade the worksheet, and make corrections to their answers.

Chapter 2, Section 3 Check Point:

- Air pressure creates global winds

-Evidence for self assessment: Big Winds Blowin' Pg. 23

Chapter 2, Section 4 Check Point:

- Water in the atmosphere creates clouds (condensation)

-Evidence for self-assessment: What role does condensation play in cloud formation?

- Temperature affects the amount of water the air can hold (relative humidity)

-Activity: Sling Psychrometer Lab

-Summative Assessment: Relative humidity worksheet (91) – The students will rate the checkpoint on the thermometer.

- Three main types of clouds (cirrus, cumulus, and stratus)
- Clouds indicate type of weather

-Evidence for self-assessment: Name that cloud – SmartBoard with different pictures of clouds – the students name the cloud using white boards. Part II-What types of weather do the clouds indicate? The students keep track of how many answers they have gotten correct. The students will then fill in their thermometer.

Chapter 2, Section 5 Check Point:

- There are different types of precipitation

-Water in the atmosphere WS (138)

-Evidence for self-assessment: What are the five types of precipitation?

Summative Assessment: Chapter 2 Test

Chapter 3, Section 1 Check Point:

- There are four major air masses that affect weather in North America
- There are four types of fronts that change weather
- There are two types of pressure systems (cyclone and anticyclone)

-Formative Assessment/Exit Slip: What are the four types of air masses and where do they form? How do air masses affect the weather?

-Up front WS (26)

-Tracking a weather system WS (25)

Chapter 3, Section 2 Check Point:

- Major changes in weather factors may cause storms

-Tracking a hurricane – Skills Lab (90-91)

- List four storms and explain how they are formed.

-Evidence for self-assessment: List and explain three or more weather factors that may create storms.

Chapter 3, Sections 1 and 2 Quiz (Created on 2/14/11 and saved in the common folder)

Chapter 3, Section 3 Check Point:

- Technology plays an important role in predicting the weather

-Pg. 100 Textbook – Technology and Society – How is Doppler radar an important part of technology in weather forecasting? Extension: Research this further!

- Station models provide current weather observations (I know eight of them)

Power Indicator: I can determine how weather, observations, and measurement are displayed in a station model.

-Evidence of self assessment: Weather or Not WS (ODE)

- Read and interpret weather maps

Power Indicator: I can read a weather map to interpret local, regional, and national weather.

-Evidence of self assessment: Predicting the weather WS (202)

Final Assessment: The students will be given data and will give a weather forecast to the class.

Literacy Strategy: Post-it note activity

- Introduction to weather and climate change book – Internet linked – Bryce's book
- Pg. i1 article – Dr. J. Marshall (easy)
- Air quality – Non-fiction article on pollution, o-zone
- Aurora Borealis (Northern Lights) – Nonfiction article on the South?