

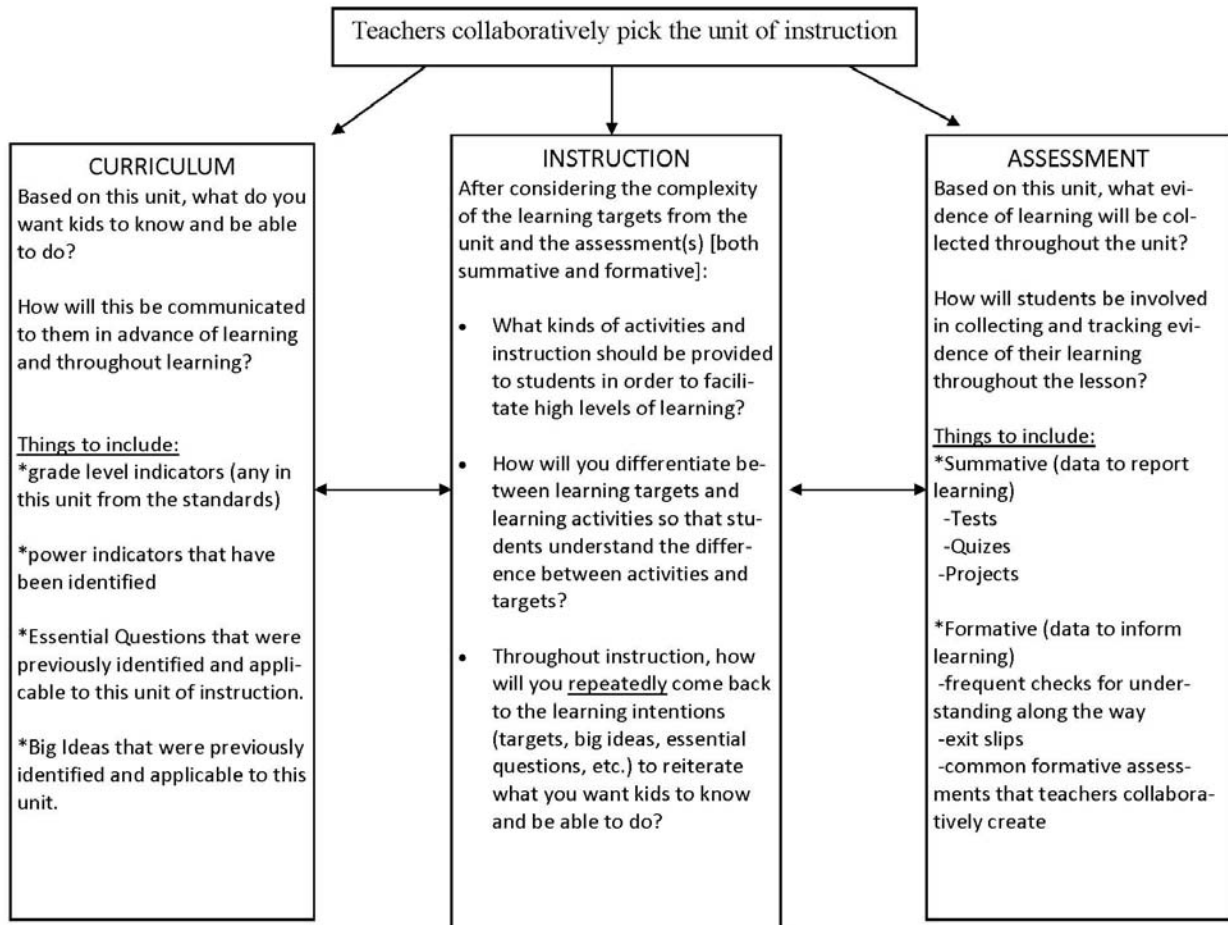
Olmsted Falls Schools: Unit Design Framework

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-6

Unit: Matter – 11/19/10 (Revised 2/14/11)

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.

Physical Science – Grade 6

2. Describe that in a chemical change new substances are formed with different properties than the original substance (e.g., rusting, burning). (Power)

Student Friendly: I can describe that in a chemical change a new substance is formed with new properties. (Conceptual, Apply)

3. Describe that in a physical change (e.g., state, shape and size) the chemical properties of a substance remain unchanged. (Power)

Student Friendly: I can describe that in a physical change the properties of a substance remain unchanged. (Conceptual, Apply)

Physical Science - Grade 7

1. Investigate how matter can change form, but the total amount remains the same. (Power)

Student Friendly: I can investigate how matter can change forms, but the total amount remains the same. (Conceptual, Evaluate)

What are the Big Ideas that go with this unit?

Physical and chemical changes have different properties.

While states of matter change, the amount remains the same (The Law of Conservation of Matter).

What are the Essential Questions that go with this unit?

What are the properties of physical and chemical changes?

How does matter change, yet the amount of matter remains the same?

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.

- “Reading About Properties and Changes” WS – Needs Revised
- “Heat up to Some Cool Reactions” – four questions at the end of the activity to check for understanding
- Physical and chemical change identification graphic organizer
- Practice short answer question (similar question to one that is on the chapter test) – Is the melting of an ice cube considered a physical or chemical change? Explain your reasoning.
- “Learning Matters” – The students will show evidence of their learning throughout the unit on “molecules”.

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

- “Learning Matters” – When the students have mastered a “check point”, they will record on “molecules” what they have learned (can be used as an entrance/exit slip or as a formative assessment).

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

- Matter quiz – Physical States and Chemical Make-up (open note quiz)
- Unit Test – Created 11/18/2010 placed in common folder

How Can I Close the Gap?

What will we do AFTER the students have completed the formative assessment to differentiate instruction (re-group students, differentiate, review sessions)?

- Throughout the unit, the teacher will differentiate some classroom activities according to the abilities of the students.
 - “States of Matter” WS
 - Brain POP Matrix

What interventions will we provide for students who do not do well on the formative assessment?

- The students who do not do well on the formative assessment will meet with the teacher for additional review and practice.

What will we do for the students who excel? What extension activities will we provide?

- The students who excel with “Reading about properties and changes” will complete reading “Understanding Chemical and Physical Reactions” and answer questions.
- The students who excel with states of matter will be given a challenge activity: Table
- The students who excel with identifying physical and chemical properties will be given extension activities: “Physical and Chemical Changes” Worksheet

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.

**I can describe that in a physical change the properties of a substance remain unchanged.
(Conceptual, Apply)**

Check Points:

- Solid, liquid, gas, and plasma and their properties (freezing, evaporation, condensation, melting, **sublimation**, boiling, and **vaporization**)
- Atoms
- Molecules
- Compounds
- Mixtures
- Properties of physical changes (atoms do not rearrange, can be reversed, and no energy is produced)

Students will record what they have learned on “molecules” i.e. What is an atom? What is freezing?

Activities:

- “Matter versus Not Matter” WS
- “What’s the Matter” WS
- “How do Things Shape Up” WS
- Brain POP – “States of Matter” and Matrix (fill in part of the matrix for the students)
- “Changes in State” Reading Selection and Questions
- “States of Matter” Activity
- United Video Streaming – “Physical Science Series: Phases of Matter” (18 min.)
- SmartBoard – atoms, molecules, compounds, and mixtures
- United Video Streaming – “Changes in Matter” (17 min.) and eight questions
- Mixture - Separation Challenge Lab
- Physical Properties – Box Lab “What’s the Matter????”

Literacy Strategy:

- Fact – Question – Response using “Changes in State” reading selection and questions

Summative Assessment:

Matter quiz – Physical States and Chemical Make-up (open note quiz)

Student Friendly: I can describe that in a chemical change a new substance is formed with new properties. (Conceptual, Apply)

Check Points:

- In a chemical change, heat energy is given off and a new substance is formed
- Properties – flammability and reactivity

Activities:

- Balloon Demonstration (Baking soda, vinegar, and empty water bottle)
- “Physical and Chemical Changes” Graphic Organizer (formative)
- “Observing Changes in Matter” Lab and Stations
- “Heat up to Some Cool Reactions” Activity (formative)
- “Oobleck”/”Fabulous Flubber” Lab (Could use with Law of Conservation of Matter for a more advanced class)
- “Reading About Properties and Changes” WS (formative) – Needs Revised
- Practice short answer question (similar question to one that is on the chapter test) – Is the melting of an ice cube considered a physical or chemical change? Explain your reasoning. (formative)

Student Friendly: I can investigate how matter can change forms, but the total amount remains the same. (Conceptual, Evaluate)

Check Point:

- Recognizing open and closed systems

Activities:

- “Conservation of Matter” Lab – physical/chemical properties – Data table Questions (can substitute mints, cereal, etc., for nuts)
- “Oobleck”/”Fabulous Flubber” Lab (Could use with Law of Conservation of Matter for a more advanced class)

Summative Assessment:

- Matter Test (Revised on 2/14/11 and saved in common folder)

