

<p>Title of Lesson: Fire Keeping-Oshkaabewis – Matter Lesson #2</p>	<p>Grade: 5 Subject(s): Science and Technology, Language</p>
<p>Curriculum Expectations:</p> <p>OE: Science and Technology 2. conduct investigations that explore the properties of matter and changes of matter. SE: 2.1 follow established safety procedures for working with heating appliances and hot materials 2.3 use scientific inquiry/experimentation skills to investigate changes of state and changes in matter.</p> <p>OE: Language 1. generate, gather, and organize ideas and information to write for an intended purpose and audience; SE: 1.3 gather information to support ideas for writing, using a variety of strategies and a range of print and electronic resources</p>	<p>Learning Goals</p> <p><u>Knowledge and Understanding</u></p> <ul style="list-style-type: none"> • Wood changes to ash after it is burned. • Heat light is given off while the wood is burning • When wood is burned it turns into ash. • Students are knowledgeable about safety procedures when conducting scientific experiments. Students are aware of the term wafting- safe way of smelling. <p><u>Skills</u></p> <p>Students will know:</p> <ul style="list-style-type: none"> • What matter is • Wood is matter. • When the wood changes from one material to another is called a chemical change. • When the fire is giving off heat, light and smoke are indicators of a chemical reaction. • Students will understand the term oxidization. • Students will gain an understanding that there are many different types of chemical changes around us.
<p>Enduring Understanding(s)/Big Idea(s):</p> <ul style="list-style-type: none"> • Matter can be changed but not destroyed. • Chemical reaction is not reversible. • Chemical change creates a new substance; 	<p>Essential Questions:</p> <ul style="list-style-type: none"> • What does matter mean? • What does oxidization mean? • What is a chemical change? • Can the ash change back into the wood? • How can you tell if a chemical reaction occurred?
<p>Resources:</p> <p>The Ontario Curriculum Grades 1-8 Internet- Northern Life.ca - News</p>	<p>Materials:</p> <p>safety glasses, matches, glass, paper fire extinguisher, water, pencils, erasers, water glasses, bowls, pennies, salt, spoons, strainers and white cloth or paper towel, baking soda, vinegar, food coloring, beakers, plates, Glue,</p>

	bleach, beakers stirring rods, bottles of coca cola and milk.
<p>Relevance:</p> <ul style="list-style-type: none"> Chemical change occurs in different ways in our daily lives and can affect us at different levels. 	<p>Connections: National News “Train carrying crude oil derails near Gogama, Ont.”</p> <p>Around 10 rail cars derailed four kilometres southwest of Gogama early Saturday morning, says the OPP.</p> <p>No one was injured in the train derailment, said police, but several cars caught fire. They were carrying crude oil.</p> <p>Chemical change occurs in different ways in our daily lives. These can lead to detrimental effects to the environment.</p>
<p>Media:</p>	<p>Hands-on:</p> <ul style="list-style-type: none"> Students will work in pairs and conduct each of the five experiments. Students will individually create a POE and complete one for each experiment in their science notebooks. The students will also draw a diagram for each experiment.
<p>Differentiated Instruction, Modifications and Accommodations (Lesson Delivery):</p> <p>Process--Extra assistance will be provided to those who need it. Scribing,</p> <p>Product--Have students with IEP present with a verbal explanation of the experiment with a diagram.</p> <p><i>Accommodations / Modifications:</i></p> <p><input type="checkbox"/> Increase time, space, amount <input type="checkbox"/> Scribe</p> <p><input type="checkbox"/> Use manipulatives</p> <p><input type="checkbox"/> Decrease time, space, amount <input type="checkbox"/> Oral explanation</p> <p><input type="checkbox"/> Include visuals, models, cueing, organizers</p> <p><input type="checkbox"/> Change seating, groupings <input type="checkbox"/> Peer tutor/Partner</p> <p><input type="checkbox"/> Extend <input type="checkbox"/> Other:</p> <p>_____</p>	<p>Differentiated Instruction, Modifications and Accommodations (Assessment):</p> <ul style="list-style-type: none"> Extra assistance will be provided to those who need it. Scribing, Provide students with IEPs extra time to complete their POE reports. Have students with IEP present with a verbal explanation of the experiment with a diagram. Teacher will provide experiment instructions for each station. Teacher will prompt students with questions to get them thinking

<p>Critical Thinking What makes the fire turn the wood into ash? Can the ash turn back into the piece of wood?</p> <p>Station 1: What happens if you did not put salt in the baking soda and vinegar station? Would you get the same reaction if you put salt into the same ingredients?</p> <p>Station 2: What reaction do you get when you add the glue, and borax together? What reaction when you add water to the glue and borax? Would you get the same reaction and why?</p> <p>Station 3: What happens when you pour the milk into the bottle of coke? What happens if you pour water instead of milk into the bottle of coke? Would you get the same reaction?</p> <p>Station 4: In the penny station, why do the pennies get shiny after sitting in the vinegar and salt solution? What happens to the pennies when you let them sit there and dry? After sitting in the vinegar and salt solution, what do you think the pennies would look like if you rinsed them of with water and let them dry?</p> <p>Station 5: Steel wool station. What happens when you let steel wool sit in water for while? Why is the steel wool rusting? Is rusting a chemical reaction?</p>	<p>Describe chosen critical thinking activity:</p> <p>a) <i>Information Gathering Skills</i> involve acquiring relevant information, data,</p> <ul style="list-style-type: none"> - accessing prior knowledge - observing, obtaining information through the senses - questioning to obtain new information - identifying and acknowledging sources
<p>Assessment: <u>Assessment for Learning</u> <u>Assessment as Learning</u> <u>Assessment of Learning</u> Observation of completed POE report with diagram</p>	<p>Detailed description of Assessment Process and Strategies:</p> <ul style="list-style-type: none"> • Has the POE report been completed correctly with diagram for each experiment? • Is POE report written clearly with appropriate scientific terminology?

Assessment Strategies: Diagnostic	Formative	Summative	Anecdotal Device	Collaborative/social skill
<input type="checkbox"/> Observation <input type="checkbox"/> Anecdotal notes <input type="checkbox"/> Interview <input type="checkbox"/> Inventories/surveys <input type="checkbox"/> Test/quiz <input type="checkbox"/> questionnaires <input type="checkbox"/> KWL <input type="checkbox"/>	<input type="checkbox"/> Observation <input type="checkbox"/> Anecdotal notes <input type="checkbox"/> Work samples <input type="checkbox"/> Test/quiz <input type="checkbox"/> Checklist <input type="checkbox"/> Conference <input type="checkbox"/> Peer-assessment <input type="checkbox"/> Self-assessment <input type="checkbox"/>	<input type="checkbox"/> Portfolios <input type="checkbox"/> Unit test <input type="checkbox"/> Self-assessment <input type="checkbox"/> Peer-assessment <input type="checkbox"/> Final reflection <input type="checkbox"/> Speeches <input type="checkbox"/> Projects <input type="checkbox"/> Presentations <input type="checkbox"/> Reports, oral/written <input type="checkbox"/>	<input type="checkbox"/> Rubric <input type="checkbox"/> Rating Scale <input type="checkbox"/> Anecdotal <input type="checkbox"/> Checklist	__ Participating fully __ Listening attentively __ Expressing appreciation __ Reflecting on experience __ Valuing diversity __ Thinking constructively __ Making responsible decisions __ Resolving conflict __ Solving problems creatively __ Working on tasks together __ Assessing improvement __ Celebrating achievement
Student Groupings:	<input type="checkbox"/> Individually <input checked="" type="checkbox"/> Pairs <input type="checkbox"/> Small Groups <input type="checkbox"/> Whole Class			

Minds On**Approximately 15 minutes**

Teacher will have a log of hard maple and a tray of black ashes from the fire that they had burned in the tipi from the previous lesson they had with the knowledge holder. The teacher asks the students what has happened to the wood. Pointing to the pile of ash the teacher asks if the pile of ash can be turned back into wood. The teacher asks what the process is called when a log is burned and turned into ash. On the flip chart teacher will record student answers.

The teacher tells the students that this is called a chemical change. Teacher will ask if they understand the meaning of matter, oxidization and what chemical change is. Teacher will create a vocabulary chart and definitions for what matter is, what oxidization is and what a chemical change is and hang it in the classroom.

Let the students know that we will be learning about the chemical change in matter and that there are different ways in which chemical reaction can occur such the wood was burned and changed into ash. The teacher tells the students that she will first demonstrate an experiment called the changing paper demonstration and let the students know that they too will have a chance to test out 5 other experiments.

Safety Issues: Ensure that students recognize the household product warning labels before starting this unit. Have students wash hands after handling any chemical product. Teach children to waft one hand to fan odour toward nose rather than put nose directly over chemical.

Action!**Approximately 25 minutes**

Teacher will first demonstrate an experiment showing the chemical reaction using paper and fire. Using a match, a glass, and paper the teacher will do the changing paper demonstration.

Ask the students what if I crumple the paper, is it still paper? What if I cut or rip it up, is it still paper? What if I burned it, is it still paper? Ask the students what do you think will happen if I burned the paper? What would it look like? Does it look like paper? This process is called a chemical change.

When burned, the paper has been oxidized from a paper state to ash state.

Oxidization: the chemical reaction that occurs when matter breaks down with oxygen. (In this case, the paper.)

Combustion: the oxidization of a chemical which cannot be turned back to paper.

During the reaction of the paper being burned, heat, light and smoke are given off as a byproduct of the chemical reaction which is also referred to as combustion.

Students will work in pairs. Each group will visit each of the 5 experiment stations that have already been set up in the science lab. Students will each have an opportunity to try each experiment and write in their lab books a report for each experiment.

Teacher will go over the success criteria with the class and what each lab report should look like when they write up their lab reports. This will be available to see in the class. Teacher will remind the students Safety First and will go over safety rules in the science lab.

Station 1. Baking Soda and Vinegar station - To prove that there is a chemical change when adding both ingredients together and to observe the bubbling and gassing action that is producing carbon dioxide. **Materials:** Baking soda, vinegar, food coloring, beakers, plates.

Station 2. Glue and bleach/cleaning agent station – To observe the chemical reaction when adding the bleach to glue. **Materials:** Glue, bleach, beakers stirring rods,

Station 3. Coca cola and milk station -To observe the chemical reaction when we add some milk to a bottle of coke. **Materials:** bottles of coca cola and milk.

Station 4. Penny, white vinegar and salt- to observe and compare how white vinegar and salt effect pennies. **Materials:** water glass bowls, pennies, salt, spoons, strainers and white cloth or paper towel.

Station 5. Rusting of steel wool station. New steel wool/rusted steel wool and salt.

Instructions will be provided at each station on how the experiment is to be done, as well as the safety apparel that each student will use, if required, when conducting the experiments. Gloves, safety glasses and lab coats.

Consolidation**Approximately 15 minutes**

Have the paired-up students discuss their reports amongst themselves first. Regroup and have the students share with the class what their findings and their understanding of how chemical change may have differed at from 2 different stations.

Have the students share to the class which station was their favorite and why

Name: _____

Date _____

Description of focus of demonstration

(e.g., What will happen when at this station – Vinegar and Baking Soda Station?)

Predict

Write or draw all the things you think you will see.

Explain

Write the reasons why you think it will happen this way.

Observe

Draw or describe what you did see.

