

Name: Harry Nowell Onsite OA _____

Lesson Plan 1 – Three Little Pigs

Subject: Grade 1 Science and Tech

Teacher: Harry Nowell

Big Idea: The material and structure of an object determine its purpose.

Strand: Understanding Structures and Mechanisms: Materials, Objects and Everyday Structures

Topic: Properties of Building Materials

Grade: One

Date: 2014

Time required: Approx 50 minutes

– this is part of an activity based day.

Pre teaching

Overall Expectation: Demonstrate and understanding that objects and structures have observable characteristics and are made from materials with specific properties that determine how they are used.

Specific expectation: # 3.2 pg 49 – “Describe Structures as supporting frameworks
#3.5 Identify the materials that make up objects and structures.”

Learning Goal: I will learn about different objects and if they are good to build with.

Success Criteria: Student will start to explore different materials and be able to verbally describe and physically demonstrate the difference between three materials through tactile exploration and building scenarios.

Lesson description & Strategies:

- Hook: Shared Reading of “Three Little Pigs”
- Set expectations about answering questions and handling manipulatives (*Hands up to answer Qs, stay seated quietly, gentle, no throwing blocks, no hitting...*)

- **Assessment for Learning:** Inquiry: (5Es - Engagement) Discussion about straw, sticks and bricks: “Who has held straw sticks and bricks? What are they like? Describe them to me...”

- **Body Break** – have students pretend to be straw waving in the wind. “Show me how sticks would be in the wind. Pretend to be a strong brick.” Students re-join the circle.

- **Assessment as learning** (5Es - Exploration): Present straw, stick and a brick to the class, one by one. Have students pass them around. Frame a discussion about the differences between the materials: “How can you describe each object? How does it feel? Is it strong, light...? What other words could you use to describe each object?”

- **Introduce New Science Activity Centre Idea – to be available to small groups over a one week period.**

Present students with:

1. drinking straws / connectors
2. Cardboard blocks (lightweight)
3. Wooden blocks (heavy)

Ask students to describe each object: “How strong do you think _____ is? Which is stronger? Which is strongest?”

Think, Pair Share: Tell students they are to collaborate as a group of three and build (5Es - Exploration) three separate houses for the pigs using just straws, cardboard or wooden blocks. Once they are built teacher is to try to blow them over using a house fan. “Which will be strongest?” (5Es – Elaboration / Evaluation)

Time:

10 minutes

2 mins

3 mins

7 mins

30 mins

3 mins

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<p>• Assessment of learning When ‘houses’ are built teacher tries to blow over houses. Ask students to describe what happened (5Es - <i>Explanation</i>). Students present evidence of learning through verbal answers and visual representation of ‘strong’ block building ideas.</p> <p>Assessment criteria:</p> <ol style="list-style-type: none">1. Observe students informal talk describing materials (Assessment of learning) specifically by noting use of language and vocabulary to describe materials.2. Record student’s descriptions of their building experiment while using probing questions. (Formal Assessment of learning.)3. Extra Time Idea (see below) – Journal entries depicting properties of materials. (Formal Assessment of learning.)	
<p>Extra Time Idea:</p> <p>Formal Assessment of learning: (5Es - <i>Explanation</i>): In their science journals, have building teams individually draw pictures of three separate houses and write words describing each house with respect to building properties.</p>	
<p>Accommodations/Special needs:</p> <ul style="list-style-type: none">• Find Russian and Urdu version of Three Little Pigs book to send home with ELL students.• Seat Ayaan close to teacher’s chair to help with ELL language-based behaviours.	
<p>Safety Considerations:</p> <ul style="list-style-type: none">• Frame appropriate behaviours for use of blocks.	
<p>Resources:</p> <ul style="list-style-type: none">• Three Little Pigs Book• real straw, stick and brick – great manipulatives for inner city students or for students new to Canada.• straws and connectors• cardboard blocks• wooden blocks• house fan and extension cord	
<p>Post teaching</p>	
<p>Follow-up:</p>	
<p>Reflection: This lesson drew the stereotypical science person who was excited about experimenting with tangible building blocks. While all students participated appropriately, the lesson engaged one demographic more than others. This is part of the reason I introduced a later materials lesson based around Cinderella and clothing.</p>	

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Lesson Plan 2 – Cinderella’s clothes

Subject: Grade 1 Science and Tech

Teacher: Harry Nowell

Big Idea: Materials have specific properties.

Strand: Understanding Structures and Mechanisms: Materials, Objects and Everyday Structures

Topic: Materials and purpose

NOTE: This lesson is to be timed with cold weather. This lesson offers some Cross Curricular connection with Arts (Drama) and Language (Literacy).

Grade: One

Date: 2014

Time required: 46 minutes

Pre teaching

Overall Expectation: Investigate structures (and materials) that are built for specific purpose to see how their design and materials suit the purpose.

Specific expectation: # 2.3 pg 48 – “Investigate through experimentation, the properties of various materials.”

Learning Goal: I will see how different materials make different types of products.

Success Criteria: Student will start to explore different materials and understand the different ways they may be used.

Lesson description & Strategies:

Part 1

• **Hook** – Guided Reading of Cinderella. Purpose? To captivate an audience that may not always be excited about science.

• **Assessment for Learning:** Throughout the story teacher asks inquiry-based questions (5Es - *Engagement*) about the materials, and specifically, clothing in the story: “*What is Cinderella wearing? What are the step sisters wearing? What’s different about the materials?*”

• **Assessment as learning Brainstorming:**

After Cinderella story teacher asks students about their clothing: “What are you wearing? Why?” ... questions should lead students to think about characteristics of their clothing. Teacher writes key ‘materials’ vocabulary words on the flip chart.

• **Think Pair Share** Teacher asks students to pair up with an elbow partner to share what they are wearing, specifically... “*Why are you wearing a t-shirt, sweater, dress, pants? What makes it comfortable?*” Observations? Teacher observes and supports discussions.

... Break for play-based learning activities – teacher dresses in beach attire – shorts and t-shirt, sun hat, etc. Students are brought back to circle on carpet. Outdoor recess or lunch break is ideally approaching...

Part 2

• **Hook:** Teacher addresses students in shorts and t-shirt. Teacher excitedly states “*Recess is coming soon! I can’t wait to go outside (in the freezing cold.)*” Pause for student reaction..... Students will react. Teacher asks “*What’s wrong?!*”

• **Brainstorming:** Teacher leads inquiry into why beach clothes are not appropriate for being outside

Time:

12 mins

8 mins

3 mins

5 mins

<p>on a winter day. <i>“Why wouldn’t I wear shorts in the winter? What should I wear instead?”</i> Students explain why summer clothes are not appropriate in the winter (5Es - <i>Explanation</i>):</p> <ul style="list-style-type: none"> • Teacher models guided literacy exercise in science using flip chart. Teacher draws a t-shirt and with help of students (inquiry) writes appropriate vocabulary about the material of the t-shirt – <i>“Thin, lightweight, small, cool”</i>. • Students assigned to write/draw in their Science Journals about their clothes and characteristics <p>• Assessment of Learning:</p> <ul style="list-style-type: none"> • Informal student verbal answers in inquiry elements. • Formal assessment of student answers in science journals – drawings and words. <p>Assessment criteria:</p> <ol style="list-style-type: none"> 1. Informally observe students informal talk describing materials of learning (Assessment of learning) specifically by noting use of language and vocabulary to clothes. 2. Formally assess journal entries looking for understanding of properties of materials of clothing. (Assessment of learning.) 	<p>5 mins</p> <p>5 mins</p> <p>8 mins</p>
<p>Accommodations/Special needs:</p> <ul style="list-style-type: none"> • Find Urdu and Russian words for a few items of clothing. • Seat Ayaan close to teacher’s chair to help with ELL language-based behaviours. 	
<p>Safety Considerations:</p>	
<p>Resources:</p> <ul style="list-style-type: none"> • Cinderella story • Beach outfit 	
<p>Post teaching</p>	
<p>Follow-up:</p>	
<p>Reflection:</p> <p>This lesson went very well. Especially, the beach attire before outdoor recess. Students were very engaged and animated telling me why I shouldn’t go out for recess (in the winter) in shorts and t-shirt. Their engagement was a perfect start for the discussion into materials of clothing!</p>	

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Lesson Plan 3 – Water, Ice and Steam

Subject: Grade 1 Science and Tech

Teacher: Harry Nowell

Big Idea: Materials and structure determine its purpose.

Strand: Understanding Structures and Mechanisms: Materials, Objects and Everyday Structures

Topic: Materials and purpose

Grade: One

Date: 2014/2015

Time required: 50 minutes

Pre teaching

Overall Expectation: Assess the impact on people and the environment of objects and structures and the materials used in them.

Specific expectation: # 1.2 pg 49 – “assess objects in their environment that are constructed for imilar urposes.”

Learning Goal: I will learn how water changes with cold and heat.

Success Criteria: Student will start to explore different materials and be able to verbally describe and physically demonstrate the difference between three related materials.

Lesson description & Strategies:

- Hook - Teacher brings a snowball into class as students come to circle... “Ouch, it’s cold! And it’s melting!” After a few minutes , teacher deposits snow into bowl.
- **Assessment for Learning:** Inquiry: “Tell me what you know about water. Hands up please! Is snow the same as water? Is ice the same as water? ”
- **Assessment as learning** Brainstorming (5Es – Engagement):
 1. Teacher pulls out a closed and sealed container of water and passes it around the circle. “Describe the container of water as it comes around. What does it look like, feel like?” Teacher leads brainstorming and urges answers in positive ways. As students use appropriate descriptors, teacher writes them on flipchart paper.
 2. Teacher pulls out a similar, sealed & closed container of solid ice and passes it around the circle. “Describe the container of ice as it comes around. How is it different than the liquid?” Teacher leads brainstorming and urges answers (5Es – Engagement) in positive ways. As students use appropriate descriptors, teacher writes them on flipchart paper.
 3. Teacher presents a kettle (safety considerations needed!) of boiling water on a table against a dark background to show steam. “Describe the this form of water. Where does the steam go? Is it the same as water?” Teacher leads brainstorming and urges answers in positive ways. As students use appropriate descriptors, teacher writes them on flipchart paper.
 4. Teacher asks what the difference between steam, water, ice (Inquiry based questioning (5Es – Explanation)) leading to “What are they all made of? Why are they all different...”
- **Think Pair Share** Teacher asks students to pair up with an elbow partner to share where they have seen each form of water... Observations? Teacher observes and supports discussions.

Time:
5 mins

15mins

5 mins

- **Introduce New Science Activity Centre Idea – to be available to groups of two for two days:**

Culminating Task:

- Containers of water, ice and a big bowl of snow are placed in the science activity centre.

25 mins

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<ul style="list-style-type: none">• Students are to observe the changes of the materials over the day and enter observations, as below, into Science Journal.• Formal Assessment of Learning: (5Es – Explanation) Students are to record observations of all three containers over the day in their science journal via words and/or pictures. Teacher is to look at journal entries with respect to evidence of understanding of transformation of ice to water. <p>Assessment criteria:</p> <ol style="list-style-type: none">1. Observe students informal talk describing ice water steam (Assessment of learning) specifically by noting use of language and vocabulary to describe forms of water.2. Teacher formally evaluates journal entries and student’s EXPLAINING their understanding of properties of water. (Assessment of learning.)	
<p>Accommodations/Special needs:</p> <ul style="list-style-type: none">• Find Urdu and Russian words for “Snow, ice and water” and post them in the science centre.• Seat Ayaan close to teacher’s chair to help with ELL language-based behaviours.	
<p>Safety Considerations:</p> <ul style="list-style-type: none">• Set kettle (boiling water) away from students.	
<p>Resources:</p> <ul style="list-style-type: none">• Containers for ice (need time to freeze) and water.• Kettle, water and access to electricity• Big bowl for snow + snow	
Post teaching	
<p>Follow-up:</p>	
<p>Reflection: Students were engaged throughout the circle based lesson. The real learning was in the science activity centre where students kept checking the melting ice and snow. Some dramatic play engaged the students – I asked in a stern voice “What have you done to the snow/ice?!” When they realized I was joking they were very open to telling me why there was water instead of snow and ice.</p>	

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Assessment Tool For Ice Water Steam Lesson

Learning Ladder was chosen because of the early grade level and some informality of assessment.

What is your target level? This level ladder will help you reach it:

Level	You might:
4	<ul style="list-style-type: none">• Provide frequent and appropriate answers to questions in group circle.• Provide clear drawings of ice and water in science journal.• Write clear and detailed sentences and descriptions that describe the melting process.
3	<ul style="list-style-type: none">• Provide some appropriate answers to questions in group circle.• Provide recognizable drawing of ice and water in science journal.• Write clear sentences and descriptions that describe the melting process.
2	<ul style="list-style-type: none">• Attempt a few answers to questions in group circle.• Provide drawing of something that could be ice and water in science journal.• Write words that describe the melting process.
1	<ul style="list-style-type: none">• No answers to questions in group circle.• No attempt at drawing of ice and water in science journal.• No attempt at words that describe the melting process.