

Lesson Plan Template for Science Lessons using the 5E Instructional Model

Grade 2	Cluster 4: Air and Water in the Environment	
Essential Question: What happens when the snow melts? Where should we collect our data to observe the spring thaw?		Number 1
Lesson Objective: To get acquainted with the schoolyard as a green space and decide on observation locations.		
Knowledge SLOs 2-4-06 Observe and identify examples of water in the environment. 2-4-07 Describe evidence of water changing state, and recognize that these changes are part of the water cycle.		
Cluster 0 SLOs 2-0-4a Follow simple directions; 2-0-4e. Respond to the ideas and actions of others in building their own understandings. 2-0-4f. Work in a variety of cooperative partnerships and groups. 2-0-4g. Verbalize questions, ideas, and intentions during classroom activities. 2-0-4h. Follow given safety procedures and rules. 2-0-8a. Recognize that learning can come from careful observations and investigations. 2-0-9a. Willingly consider other peoples views. 2-0-9b. Express enjoyment when sharing and discussing science-related experiences from daily life.		
Materials (with quantities) for a group of 24 students 8 scavenger hunt sheets, laminated; 8 markers; 8 clipboards; 1 whistle		
Engagement Phase		Time needed (minutes)
<p>Begin in circle. Inform students we are starting an exploration of how snow melts. Where does it go? We will be measuring the snow as it melts and recording data in our science journals (the water cycle and the spring melt mayhem booklets) along with digital pictures of our observations to figure out what happens to the dirt and snow as it thaws.</p> <p>Review the water cycle (evaporation, condensation, precipitation song-sung to Darling Clementine- Evaporation, condensation, evaporation on my mind. It is called the water cycle and its happening all the time. Evaporation, condensation, evaporation on my mind. Accumulation is the last step and the water cycles fine.</p> <p>Are there any student questions they want answered?</p> <p>Have students form groups of 3. Inform them we are going to start with a scavenger hunt. They will need to work together in order to find as many clues as possible within 15 minutes. They are not to collect the items but to find them. They can record what they have found on the hunt sheet.</p> <p>SAFETY: Do not pick up anything that can cut them such as sharp metal or broken glass. A whistle with 3 blows means to return to the tarmac.</p> <p>Remind them to look for a group location for data collection on the spring melt, no two groups the same. Locations must be suitable for observations, no spots with little snow or too much snow that we could not measure the depth. Hand out one scavenger hunt sheet and one marker per group. Get dressed and move outdoors.</p>		<p>CHECK LIST</p> <p>Did Students</p> <ul style="list-style-type: none"> <input type="checkbox"/> ...retrieve knowledge / ideas / preconceptions from long term memory <input type="checkbox"/> ...express interest / curiosity <input type="checkbox"/> ...ask questions <input type="checkbox"/> ...know the objective(s) of the lesson <input type="checkbox"/> ...know what they were to do in the Exploration Phase
Exploration Phase		Time needed (minutes)
<p>Winter Scavenger Hunt. Allow at least 15 minutes for students to find as many items as possible. It is not necessary to find all the items, but as many as possible. Do not pick them up, record on the sheet. Remind them to look for a location their group wants to use for the spring melt observations.</p>		<p>CHECK LIST</p> <p>Did Students</p> <ul style="list-style-type: none"> <input type="checkbox"/> ...actively engage with new material <input type="checkbox"/> ...work together on task <input type="checkbox"/> ...explore each other's questions / ideas / possibilities (predictions) <input type="checkbox"/> ...record observations <input type="checkbox"/> ...record measurements
Explanation Phase		Time needed (minutes)
<p>Return to the classroom. Discuss the scavenger hunt and what the students may have found. Have groups present their location and data collection. Why did the group chose this location?</p> <p>Possible new vocabulary Observation Data collection Measurement</p>		<p>CHECK LIST</p> <p>Did Students</p> <ul style="list-style-type: none"> <input type="checkbox"/> ...present data <input type="checkbox"/> ...use data as evidence to justify claims <input type="checkbox"/> ...meaningfully apply previous concepts learned <input type="checkbox"/> ...listen respectfully to the

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	<p>ideas of others</p> <ul style="list-style-type: none"> <input type="checkbox"/> ...question explanations <input type="checkbox"/> ...detect patterns or trends in the data <input type="checkbox"/> ...use new vocabulary <input type="checkbox"/> ...develop their understanding / skills
<p>Recording (writing / drawing); Closure; Link to next session</p> <p>Teacher writes down each groups location and informs students we will begin our observations next science lesson.</p>	<p>Time needed (minutes)</p> <hr/> <p style="text-align: center;">CHECK LIST</p> <p>Did Students</p> <ul style="list-style-type: none"> <input type="checkbox"/> ...demonstrate (on paper) their conceptual understanding <input type="checkbox"/> ...meaningfully apply what was learned to previous concepts learned <input type="checkbox"/> ...understand the focus of the next science lesson <input type="checkbox"/> ...know what question(s) to ask / knowledge to share with friends and family

Lesson Plan Template for Science Lessons using the 5E Instructional Model

Grade 2	Cluster 4 : Air and Water in the Environment	
Essential Question What is happening out there?	Number 2 and 3	
Lesson Objective To observe and take measurements begin to think about where the water is headed.		
Knowledge SLOs 2-4-01 Use appropriate vocabulary related to the water cycle. 2-4-06 Observe and identify examples of water in the environment. 2-4-07 Describe evidence of water changing state, and recognize that these changes are part of the water cycle. 2-4-12 Identify substances that pollute water, and describe ways of reducing such pollution.		
Cluster 0 SLOs 2-0-4a Follow simple directions; 2-0-4e. Respond to the ideas and actions of others in building their own understandings. 2-0-4f. Work in a variety of cooperative partnerships and groups. 2-0-4g. Verbalize questions, ideas, and intentions during classroom activities. 2-0-4h. Follow given safety procedures and rules. 2-0-8a. Recognize that learning can come from careful observations and investigations. 2-0-9a. Willingly consider other peoples views. 2-0-9b. Express enjoyment when sharing and discussing science-related experiences from daily life.		
Materials (with quantities) 24 water cycle and the spring melt mayhem booklets, 8 small garden trowels, 8 cameras, 8 thermometers, 8 rulers, 8 pencils and 8 clipboards		
Engagement Phase		Time needed (minutes)
<p>Begin in circle. Review water cycle. Have students remember where their chosen location is (previously written down by teacher). Have students form their previous groups. Inform them we are going to begin collecting data for the spring melt. Decide on who will record, who will take measurements and who will take pictures. These jobs will rotate as we are going to repeat this 3 times as the snow melts throughout the month.</p> <p>Are there any questions students want answers for?</p> <p>Hand out 8 booklets, 8 cameras, 8 thermometers, 8 rulers, 8 small garden trowels, 8 pencils and clipboards. Get dressed and go find locations.</p>		<p>CHECK LIST</p> <p>Did Students</p> <ul style="list-style-type: none"> <input type="checkbox"/> ...retrieve knowledge / ideas / preconceptions from long term memory <input type="checkbox"/> ...express interest / curiosity <input type="checkbox"/> ...ask questions <input type="checkbox"/> ...know the objective(s) of the lesson <input type="checkbox"/> ...know what they were to do in the Exploration Phase
Exploration		Time needed (minutes)
<p>Have groups go to their locations to observe, record, take a picture and complete the first log sheet. Look for evidence of any questions the students may have asked. Teacher can consult with all groups as they work.</p>		<p>CHECK LIST</p> <p>Did Students</p> <ul style="list-style-type: none"> <input type="checkbox"/> ...actively engage with new material <input type="checkbox"/> ...work together on task <input type="checkbox"/> ...explore each other's questions / ideas / possibilities (predictions) <input type="checkbox"/> ...record observations <input type="checkbox"/> ...record measurements
Explanation Phase		Time needed (minutes)
<p>Returning to the classroom. Class discusses their data collections. What was the same? What was different? Did you see anything interesting? What surprised you? Can you make any predictions for future data collections?</p> <p>New Vocabulary:</p>		<p>CHECK LIST</p> <p>Did Students</p> <ul style="list-style-type: none"> <input type="checkbox"/> ...present data <input type="checkbox"/> ...use data as evidence to justify claims <input type="checkbox"/> ...meaningfully apply previous concepts learned <input type="checkbox"/> ...listen respectfully to the ideas of others <input type="checkbox"/> ...question explanations <input type="checkbox"/> ...detect patterns or trends in the data

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	<input type="checkbox"/> ...use new vocabulary <input type="checkbox"/> ...develop their understanding / skills
<p>Recording (writing / drawing); Closure; Link to next session</p> <p>Have students record data into their own journals and paste in previous days photo. Explain we are going to collect more data from the same locations in few days. Ask about any links to the water cycle such as snow is precipitation. What about evaporation? Can we observe any moved soil? YES WE DID-stream on sidewalk carrying 'river' of soil! Great opportunity here to talk about run-off and the health of our watershed. Linking this to farmers fields, use of fertilizers and Lake Winnipeg.</p>	<p>Time needed (minutes)</p> <hr/> <p style="text-align: center;">CHECK LIST</p> <p>Did Students</p> <input type="checkbox"/> ...demonstrate (on paper) their conceptual understanding <input type="checkbox"/> ...meaningfully apply what was learned to previous concepts learned <input type="checkbox"/> ...understand the focus of the next science lesson <input type="checkbox"/> ...know what question(s) to ask / knowledge to share with friends and family



WINTER SCAVENGER HUNT

- a rock
- soil
- something smooth and cold _____
- something scratchy _____
- something wet _____
- something sticky _____
- something made by humans (this is litter – pick it up!) _____
- something that you think is really interesting

- a tree with flat needles
- a pine cone
- a pine cone that has been pulled apart by squirrels
- place where a bird could hide _____
- mammal (example: squirrel or dog) _____
- an animal nest _____
- place where an animal could get water

- an animal track _____
- hole in a tree
- something that a bird could use to make a nest

- something green _____

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Day	Spot or Location	How deep is the snow?	What is the temperature at the bottom of the snow pile?	What is the temperature at the top of the snow pile?	How deep is the water?
1		cm	°C	°C	cm
		cm	°C	°C	cm
		cm	°C	°C	cm

Is the snow pile clean or dirty? _____

Is there any water? _____

Place today's picture here

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Day	Spot or Location	How deep is the snow?	What is the temperature at the bottom of the snow pile?	What is the temperature at the top of the snow pile?	How deep is the water?
2		cm	°C	°C	cm
		cm	°C	°C	cm
		cm	°C	°C	cm

What is happening to the snow pile?

How much snow has melted? (look at the last measurement and today's)

Write down something that is interesting to the group.

Is there any water? _____

What does it look like?

Is the water clear?

If the water was dirty, where do you think the dirt will go?

*Place today's picture
here*

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Day	Spot or Location	How deep is the snow?	What is the temperature at the bottom of the snow pile?	What is the temperature at the top of the snow pile?	How deep is the water?
3		cm	°C	°C	cm
		cm	°C	°C	cm
		cm	°C	°C	cm

What is happening to the snow pile?

How much snow has melted? (look at the last measurement and today's)

Write down something that is interesting to the group.

Is there any water? _____

Are there any changes to the puddle? What does it look like?

Is the water clear?

What might have happened to some of the water? Where could it have gone?

If the water was dirty, where does the dirt go?

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*Place today's picture
here*