LUCI'S LESSON

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LUCI'S LESSON

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One day, Luci and her *ittuq* were on their way home from a fishing trip.

Luci loved boating with her ittuq. They would see many things on their trips. Ittuq would tell Luci lots of stories about how things used to be “back in the day” when he was a little boy.

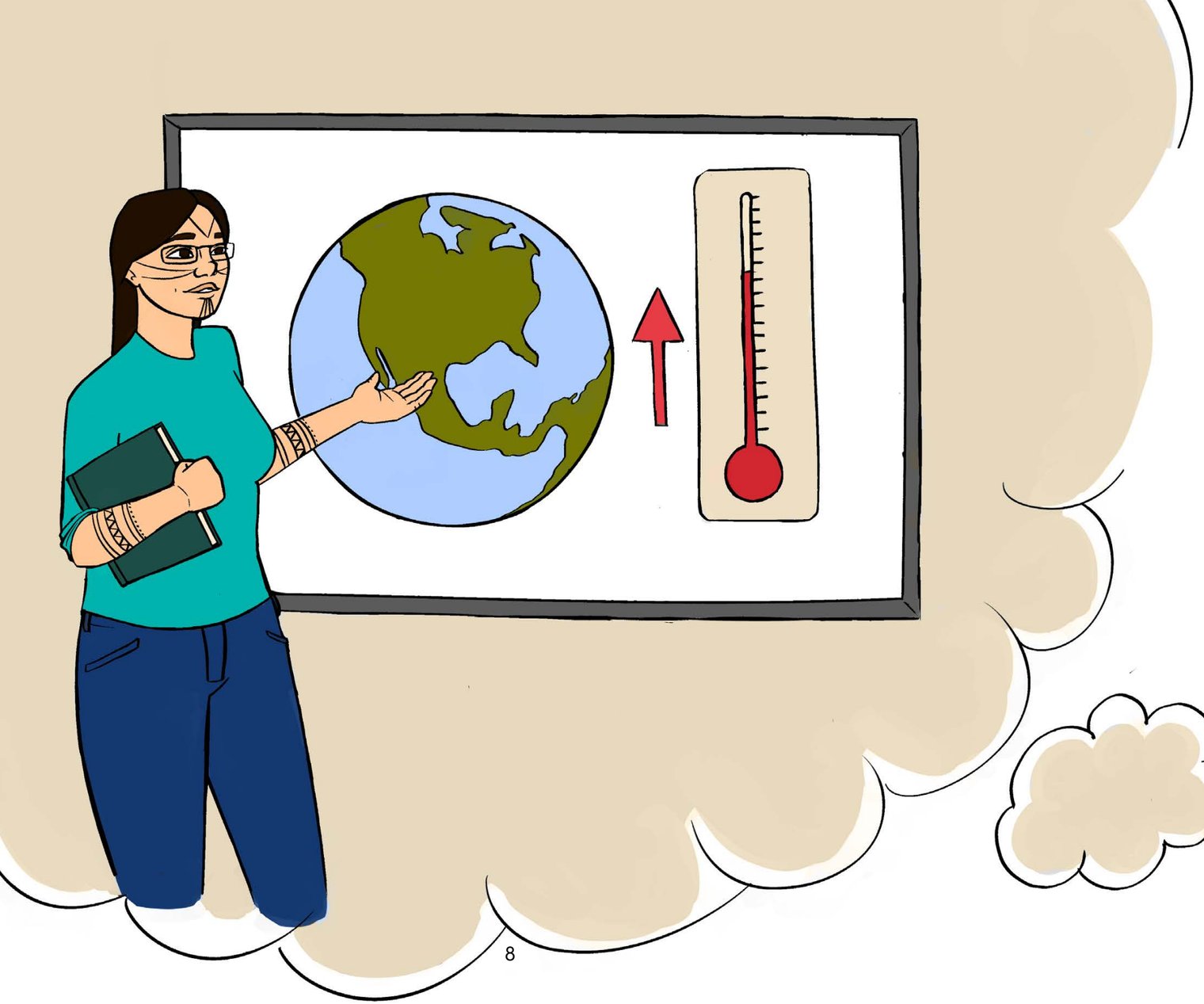
"*Uqquu*!" said Luci. "It's hot!"

Ittuq smiled and pointed to the *inuksuk*. "The North has been changing, my girl! The ice is melting faster than it used to. The water is open earlier in the spring!"

"*Taissumani*," ittuq started. "When I was little—like you—it didn't used to be like this! My grandfather used to take me out fishing too, and I remember..."

"I would bring my puppy fishing!" ittuq continued. "But it was colder back then. Winter came sooner and the summers wouldn't last so long!" Ittuq sighed. "Yes, things were definitely different back then, my girl."

Luci loved hearing ittuq's stories.



Suddenly, Luci remembered that her teacher had taught them about something called “climate change.”

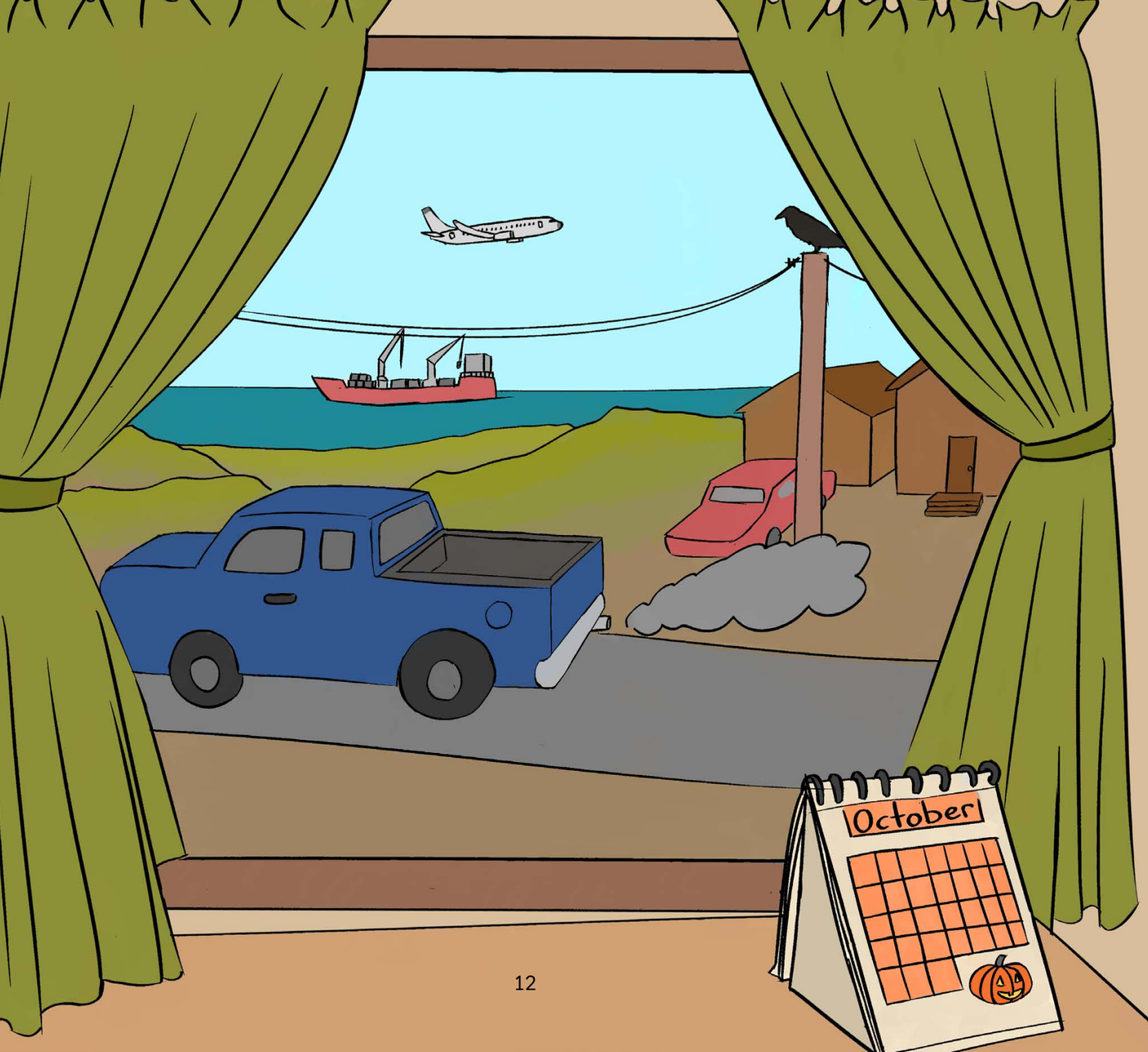
Climate change is the way that weather changes over many years. Luci thought of ittuq’s stories and how the weather was always colder “back in the day.” Was this climate change?

“It isn’t just the weather that’s getting warmer,” Luci’s teacher had said. “The land and oceans are warming up too.” She called this “global warming.”

Luci's teacher also explained how people need energy to survive—so we eat food.

She said that machines, like snowmobiles and boats, need energy as well. But instead of eating food, they burn fossil fuels. Gasoline is a type of fossil fuel that snowmobiles and boats use.

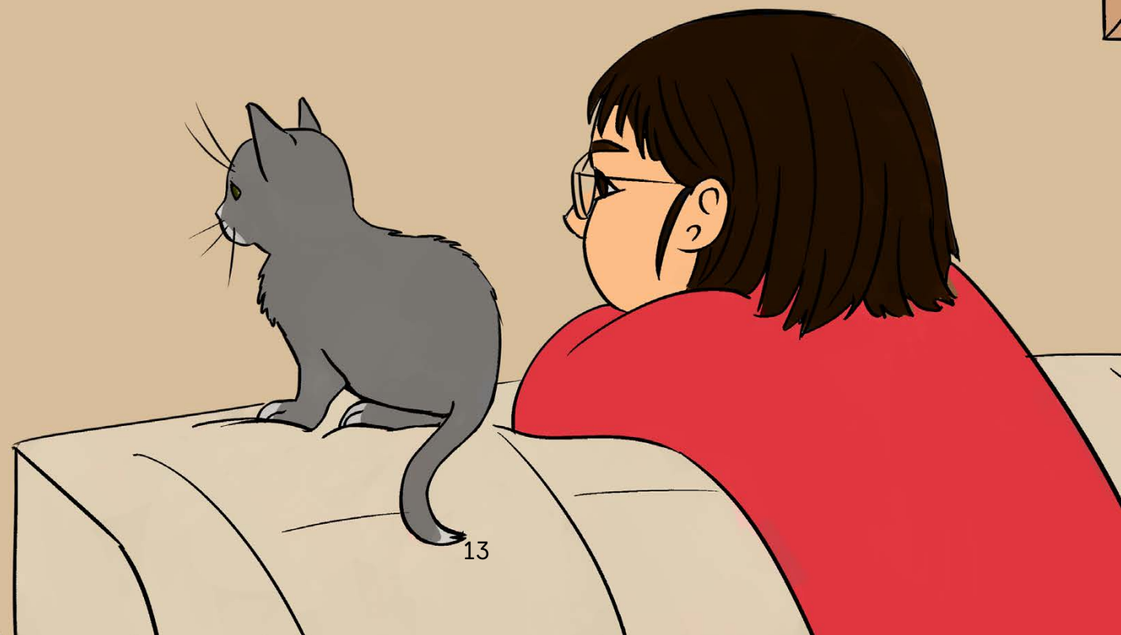
And these fossil fuels can make global warming and climate change worse.



When our machines burn fossil fuels, they create greenhouse gases.

Greenhouse gases are like bad smoke that gets stuck in the sky and makes the air get hotter. This makes global warming worse, which leads to climate change.

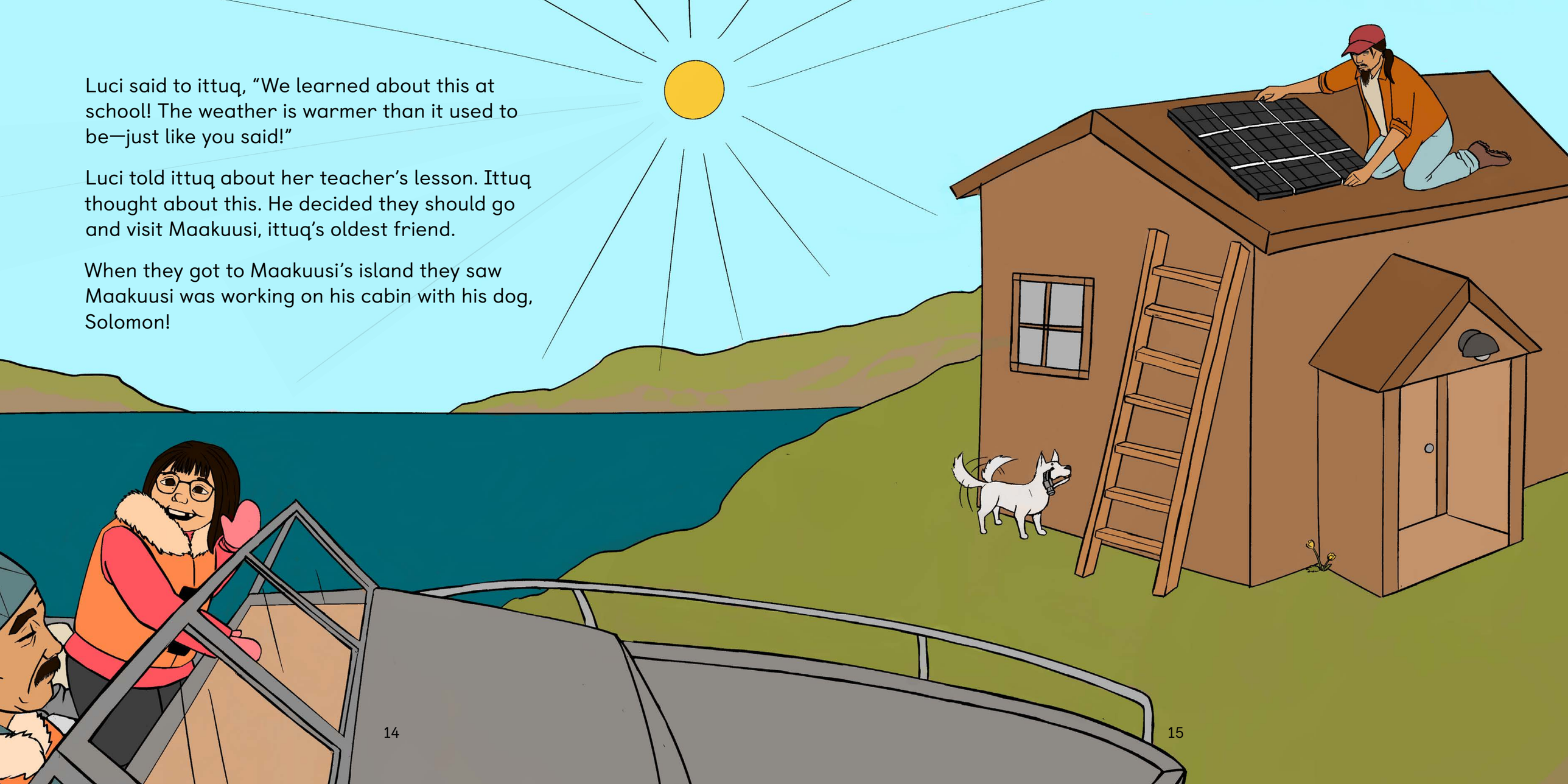
Climate change can make the weather warmer, but it can make the weather act in other strange ways as well. For example, it can create lots of storms.



Luci said to ittuq, “We learned about this at school! The weather is warmer than it used to be—just like you said!”

Luci told ittuq about her teacher’s lesson. Ittuq thought about this. He decided they should go and visit Maakuusi, ittuq’s oldest friend.

When they got to Maakuusi’s island they saw Maakuusi was working on his cabin with his dog, Solomon!



"*Qanuippit*, Maakuusi?" ittuq said. "How's it going?"

"Well, I'll tell ya," said Maakuusi, "this past spring hasn't been easy."

"Oh," said ittuq, "what do you mean?"

"Well, hunting has been difficult for ole Solomon and me." Maakuusi petted his dog's head. "The spring ice is melting earlier and faster each year!"

"You see," said Maakuusi, "with the spring ice melting earlier, travel becomes more difficult...*and* less safe. So, we have to go to the store more."

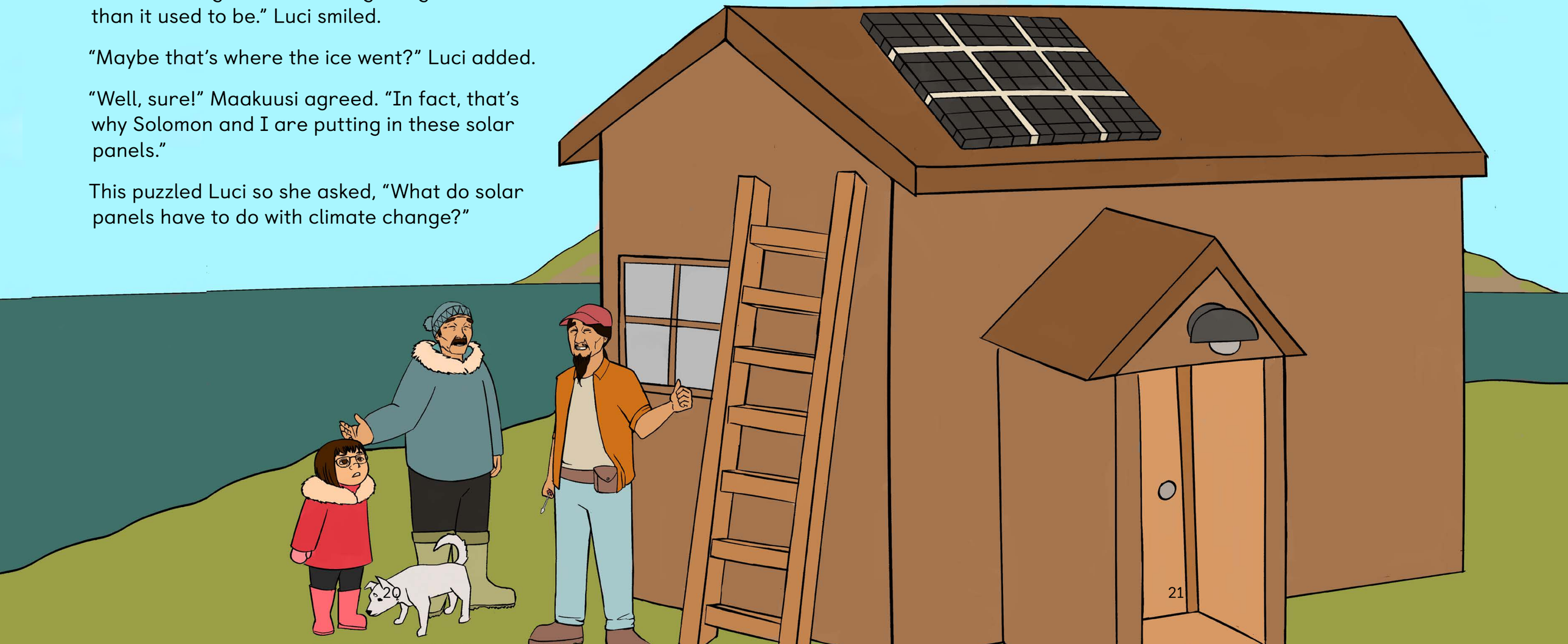
"Which is just another chore Solomon and I don't have time for!" Maakuusi laughed. "*Ajai*! We made our cabin out here so we wouldn't have to go to the store!"

"Well," said ittuq, "Luci has been telling me about climate change and how it is getting warmer than it used to be." Luci smiled.

"Maybe that's where the ice went?" Luci added.

"Well, sure!" Maakuusi agreed. "In fact, that's why Solomon and I are putting in these solar panels."

This puzzled Luci so she asked, "What do solar panels have to do with climate change?"



"Well," Maakuusi began, "solar panels make energy from the sun."

"Like a flower?" Luci asked.

"That's right," said Maakuusi. "Just like a flower. The energy comes from nature. Then Solomon and I use this energy to power things in our cabin—like the lights!"

Maakuusi smiled. "Instead of fossil fuels, we can use things like the sun to make clean energy without greenhouse gases. It's pretty neat."

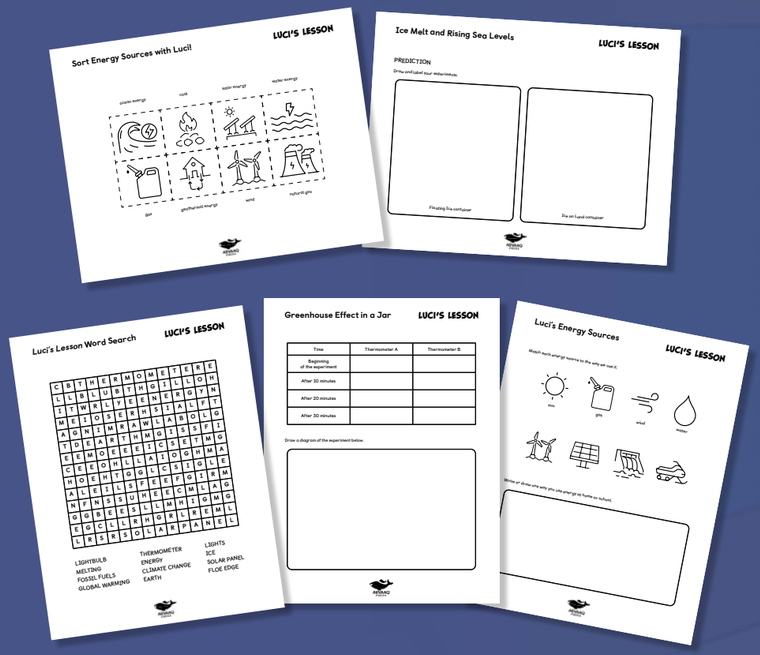
"Cleaner energy means less climate change. And less climate change means less work for Solomon and me!" Solomon barked loudly and Maakuusi chuckled. "All we need is a nice sunny day."

"Just like a flower!" Luci cheered and they all laughed.

When Luci got home that day, she looked outside and wondered if there were other ways cleaner energy could help her Arctic community.

Taima.

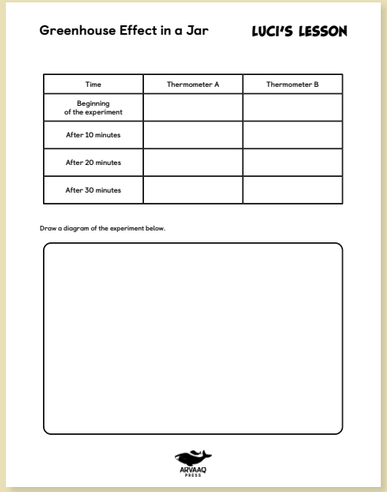
ACTIVITIES FOR TEACHERS



GREENHOUSE EFFECT IN A JAR

LESSON OVERVIEW

Students will have the opportunity to explore the impact of greenhouse gases on the Earth's temperature. In this hands-on experiment, students will see how gases in the air trap heat. They will compare the temperature inside a glass jar to the temperature outside the jar, helping them understand how greenhouse gases can change the temperature.



Greenhouse Effect in a Jar **LUCI'S LESSON**

Time	Thermometer A	Thermometer B
Beginning of the experiment		
After 10 minutes		
After 20 minutes		
After 30 minutes		

Draw a diagram of the experiment below.

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ESSENTIAL QUESTION

How do greenhouse gases affect the temperature of the Earth?

LEARNING CONNECTION

This activity encourages students to apply the concepts they read about. By observing the different temperatures inside and outside a glass jar, students will understand how greenhouse gases, like carbon dioxide, trap heat in the Earth's atmosphere. They will also explore how human activities, such as snowmobiling and boating, contribute to changes in the planet's temperature by using fossil fuels.

LEARNING ACTIVITIES

- Hands-on experiment
- Activity sheet
- Class discussion about greenhouse gases

REQUIRED MATERIALS

- Greenhouse Effect in a Jar worksheet
- Two thermometers
- Pencil
- Glass jar with lid (alternative: use cling wrap for jars without lids)
- Clock or timer

DIRECTIONS

1. Download and print the Greenhouse Effect in a Jar activity sheet from **arvaaq.com**. Ensure you have enough copies for the group.
2. Prepare the thermometers. Label one "Thermometer A" and the other "Thermometer B."
3. Place both thermometers in direct sunlight on a flat surface for three minutes.
4. After three minutes, check the temperature on both thermometers and write down the temperature reading and the time on your activity sheet. This will be the baseline temperature for both thermometers, which you will compare to later.

5. Carefully place Thermometer A inside the glass jar. Seal the jar tightly and ensure the lid doesn't cast a shadow on either thermometer.
6. After 10, 20, and 30 minutes, record the temperatures shown on both thermometers on your activity sheet.
7. Compare and discuss the results. How is the temperature inside the jar different from the temperature outside the jar? Talk about why the thermometer inside the jar is warmer. Ask the students why they think this happens and how this experiment shows the greenhouse effect in action.

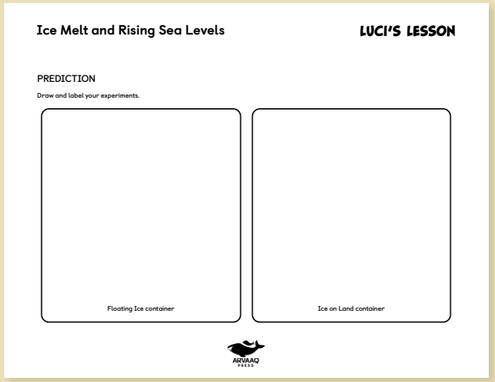
WHAT'S HAPPENING?

The thermometer outside the jar is exposed to air that keeps changing temperature as warm and cool air mixes. Inside the jar, the air is trapped and can't mix with cooler air. This causes the air inside the jar to keep getting warmer as sunlight shines on it.

This is similar to the greenhouse effect on Earth. Greenhouse gases trap heat in the atmosphere, making the Earth warmer, just like the glass jar traps heat inside.

ICE MELT AND RISING SEA LEVELS

LESSON OVERVIEW


Ice Melt and Rising Sea Levels

LUCI'S LESSON

PREDICTION

Draw and label your experiments.

Floating Ice container

Ice on Land container

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This experiment will help students investigate the effect that contact with water has on melting ice.

By the end of the activity, children will observe that ice melts faster when in contact with water versus ice on the land.

ESSENTIAL QUESTION

How does ice melt differently on land and in water, and how does it affect the level of water in each case?

LEARNING CONNECTION

In this activity, students will see how ice melts differently on land and in water. This connects to *Luci's Lesson*, where Luci's grandfather talks about how the ice in the North is melting faster every year. The melting ice on land is causing sea levels to rise. This helps students understand how melting ice is linked to global warming and climate change. As the ice melts, it affects the environment, making life in the North harder and more dangerous.

LEARNING ACTIVITIES

- Hands-on experiment
- Activity sheet
- Class discussion about where they can see ice

REQUIRED MATERIALS

- Two identical plastic containers
- Ice cubes
- Water
- Timer or stopwatch
- Ice Melt and Rising Sea Levels activity sheet
- Pencil

DIRECTIONS

1. Download the Ice Melt and Rising Sea Levels activity sheet from **arvaaq.com**. Ensure you have enough copies for the group.
2. Freeze two trays of ice cubes ahead of time. Ensure that the ice cubes are the same size and shape so the experiment is fair.
3. Prepare the containers. Label the first container "Floating Ice" and the second container "Ice on Land."
4. Fill the first container halfway with water and let it reach room temperature.

5. Before you experiment. Ask students to make a prediction. Use the following questions:
   - What do you think will happen to the water level in the Floating Ice container when the ice melts?
   - What do you think will happen to the water level in the Ice on Land container when the ice melts?
6. Tell the students to draw their predictions on the activity sheet.
7. Place 10 ice cubes into the first container with water. Place 10 ice cubes into the second container, which does not have water.
8. Set a timer or use a stopwatch. Observe both containers every 15 minutes to see how the ice is melting in each one.
9. Compare and discuss the results. After each observation, discuss how the ice cubes are melting. Talk about how submerging the ice cubes in water affected the rate at which they melted. Compare the melting speed between the ice cubes in the container with water and the ice cubes in the empty container.

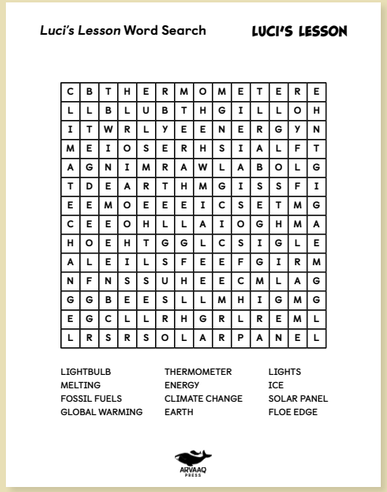
WHAT'S HAPPENING?

Ice melts when it gets warm enough to turn into water. When ice comes into contact with warmer air or water, it absorbs the heat and begins to melt. Water is much better than air at holding and transferring heat, so ice melts faster in water than it does in air. It's similar to how your cold hands warm up much faster when you put them in warm water compared to just holding them in the air.

LUCI'S LESSON WORD SEARCH

LESSON OVERVIEW

This activity will allow students to practise their word recognition and reading skills as they help Luci search for key vocabulary words. This activity not only builds on students' literacy skills, but it also teaches important environmental words that are essential in the fight against climate change.


Luci's Lesson Word Search

LUCI'S LESSON

C	B	T	H	E	R	M	O	M	E	T	E	R	E
L	L	B	L	U	B	T	H	G	I	L	L	O	H
I	T	W	R	L	Y	E	E	N	E	R	G	Y	N
M	E	I	O	S	E	R	H	S	I	A	L	F	T
A	G	N	I	M	R	A	W	L	A	B	O	L	G
T	D	E	A	R	T	H	M	G	I	S	S	F	I
E	E	M	O	E	E	E	I	C	S	E	T	M	G
C	E	E	O	H	L	L	A	I	O	G	H	M	A
H	O	E	H	T	G	G	L	C	S	I	G	L	E
A	L	E	I	L	S	F	E	E	F	G	I	R	M
N	F	N	S	S	U	H	E	E	C	M	L	A	G
G	G	B	E	E	S	L	L	M	H	I	G	M	G
E	G	C	L	L	R	H	G	R	L	R	E	M	L
L	R	S	R	S	O	L	A	R	P	A	N	E	L

LIGHTBULB
MELTING
FOSSIL FUELS
GLOBAL WARMING
THERMOMETER
ENERGY
CLIMATE CHANGE
EARTH
LIGHTS
ICE
SOLAR PANEL
FLOE EDGE

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PRE-ACTIVITY

Ask the students what they remember from the book, *Luci's Lesson*. Then show them the list of words they will find in the word search. Say each word out loud and ask the students to repeat after you. This will help them become familiar with the vocabulary.

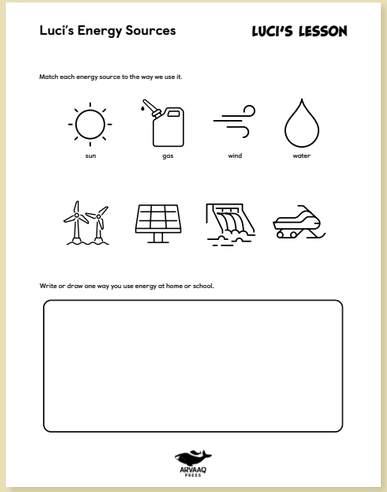
DIRECTIONS

1. Download and print the *Luci's Lesson* Word Search activity sheet from **arvaaq.com**. Ensure you have enough copies for the group.
2. Have the students find a pencil, pencil crayon, marker, or highlighter.
3. Demonstrate to the children how to look for a word in the word search. Younger students may need support with reading the words or finding them in the puzzle. Assist as needed.
4. Explain that words can go left to right or right to left, top to bottom, or bottom to top. Show an example of a word on the board.
5. Suggest looking for other words with special letters (like *Q*, *X*, *J*, or *Z*) or letter pairs (like the two *F*'s in cliff).
6. Once they find the word, explain that they should circle, mark, or highlight it using a pencil, marker, crayon, or highlighter.
7. After circling, instruct the students to cross out the word from the word list to keep track of what they've found.

LUCI'S ENERGY SOURCES

LESSON OVERVIEW

This activity will provide students with the opportunity to match different energy sources with the way those sources are commonly used in communities. By connecting each energy source to real-world examples, students will better understand the role these energy sources play in powering the things they use and see around them.



PRE-ACTIVITY

Make sure students understand what energy is before introducing the different energy sources. Start by brainstorming different types of energy sources. You can refer to the book, *Luci's Lesson*, for examples. In the book, Solomon uses solar panels to power the lights in his cabin. Solar panels are important in places far from cities where it's hard to get electricity from power plants. Explain that solar panels capture energy from the sun and turn it into electricity to power things, which helps people in remote areas use clean energy for their homes.

You can also talk about other examples from the book, like how gasoline is used to power machines, snowmobiles, and boats. Or explain that food gives energy to people's bodies. This will help students understand how different types of energy are used in everyday life.

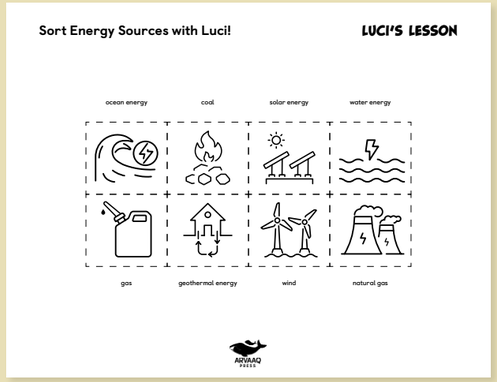
DIRECTIONS

1. Download and print Luci's Energy Sources activity sheet from **arvaaq.com**. Ensure you have enough copies for the entire group.
2. Ensure the students have access to colouring materials, such as crayons, markers, or pencil crayons.
3. Encourage the students to colour in the images first.
4. Tell the students that they will match different energy sources (like solar, wind, coal, and water) to how each energy source is used in communities. They will need to think about how each energy source works and why it is used for certain things.
5. Explain to the students that the images on the left of the activity sheet show different energy sources, and the images on the right show how the energy is used.
6. Have the students draw lines to match the energy sources on the left with the correct use on the right.
7. Before answering the question at the bottom of the sheet, discuss it with the students. Write their responses on the board to help guide them. Then ask each student to write or draw one way they use energy at home, using the ideas on the board as examples.

SORT ENERGY SOURCES WITH LUCI!

LESSON OVERVIEW

This activity will allow students to practise their sorting skills while developing a deeper understanding of which types of energy are harmful to the environment and which types of energy help sustain the Earth.



PRE-ACTIVITY

Use this activity after discussing renewable and non-renewable energy sources to help reinforce what the students have learned. In *Luci's Lesson*, you can find examples of both types of energy.

DIRECTIONS

1. Download and print the Sort Energy Sources with Luci! activity sheets from **arvaaq.com**. Ensure you have enough copies for the group.
2. Ensure students have access to crayons, markers, or pencil crayons, as well as a glue stick and scissors.
3. Let the students colour and decorate the energy cards.
4. After colouring, ask the students to cut out each square neatly. Provide assistance as necessary.

5. Ask the students to look at their energy cards and decide which ones belong in the "Earth-Friendly Resources" column and which ones belong in the "Not Earth-Friendly Resources" column.
6. Next, the students will glue the energy cards under the correct column. Provide assistance as necessary.
7. Scaffold around the room and assist students if needed. Use this as an opportunity to check the child's understanding and guide them toward the correct answer.

EXTENSION

After the activity, consider creating your own version of the activity sheet with the whole group and posting it in the classroom to extend the learning experience.

GLOSSARY

Climate change
Climate change refers to long-term changes in the Earth's weather patterns and temperatures. Today, climate change is largely driven by human activities like burning fossil fuels, which release greenhouse gases that trap heat in the atmosphere.

Energy
Energy is the ability to do work or cause change. It powers everything from homes and cars to smartphones. It comes from various sources, including fossil fuels, the sun, wind, and water.

Fossil fuels
Fossil fuels, such as coal, oil, and natural gas, are naturally found on Earth and are formed from the remains of ancient plants and animals over millions of years. Burning fossil fuels releases energy, but they also produce greenhouse gases that contribute to climate change.

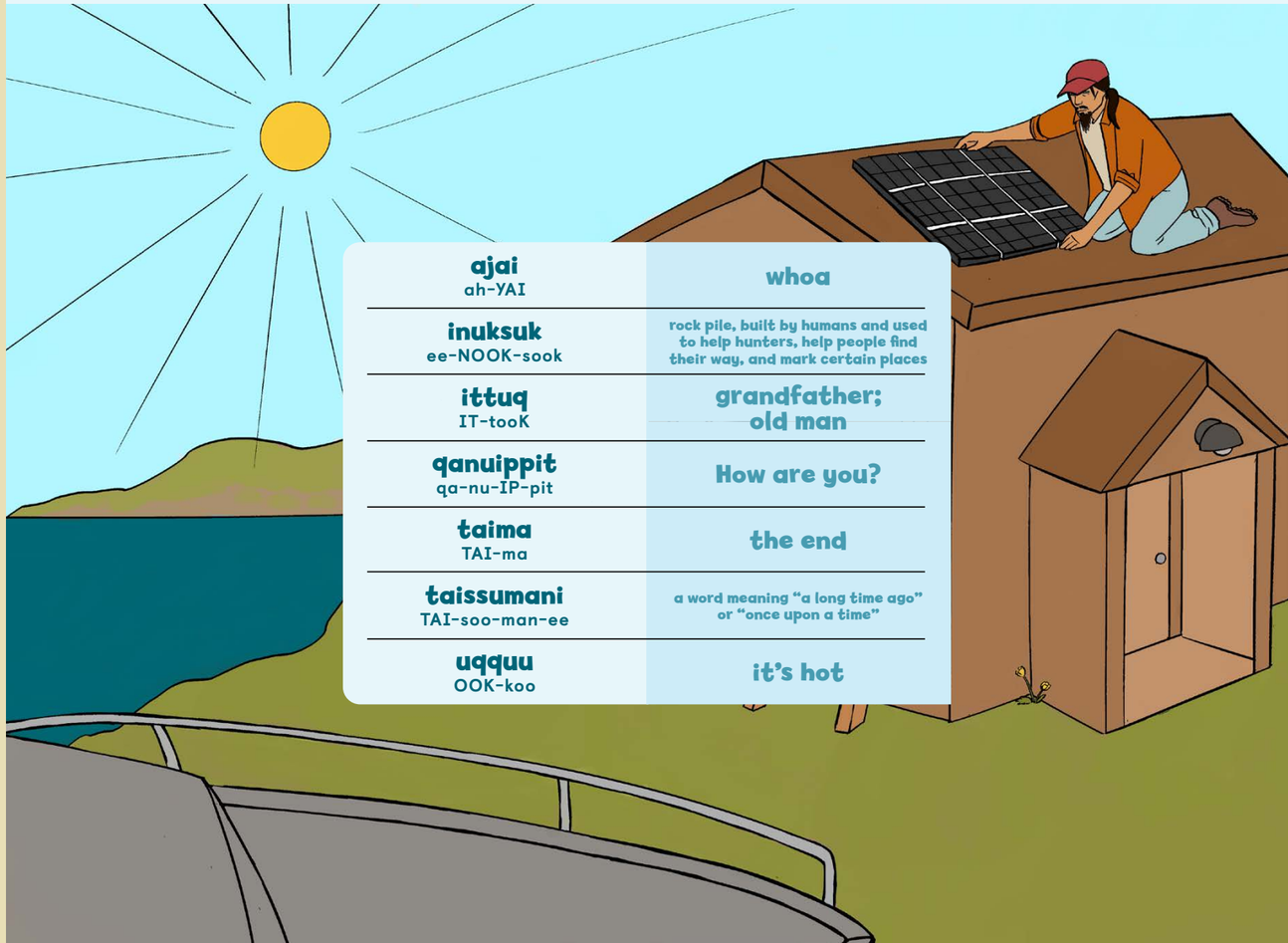
Global warming
The slow, continual increase in the temperature of the Earth's air and oceans over the last few generations. Although there are still cold days and seasons, the usual temperature continues to get warmer.

Greenhouse gas
Greenhouse gases trap heat in the Earth's atmosphere, similar to how a greenhouse traps heat to keep plants warm. Some greenhouse gases are natural and important, but burning fossil fuels releases too many greenhouse gases. This leads to global warming and climate change.

Solar panel
A solar panel is a technology that captures sunlight and converts it into electricity. It's a clean energy source that helps reduce our use of fossil fuels and the amount of greenhouse gases we add to the atmosphere.

Inuktut Glossary

Inuktut is the word for Inuit languages spoken in Canada, including Inuktitut and Inuinnaqtun. The pronunciation guides in this book are intended to support non-Inuktut speakers in their reading of Inuktut words. These pronunciations are not exact representations of how the words are pronounced by Inuktut speakers. For more resources on how to pronounce Inuktut words, visit inhabiteducation.com/inuitnipingit.



ajai ah-YAI	whoa
inuksuk ee-NOOK-sook	rock pile, built by humans and used to help hunters, help people find their way, and mark certain places
ittuq IT-tooK	grandfather; old man
qanuippit qa-nu-IP-pit	How are you?
taima TAI-ma	the end
taissumani TAI-soo-man-ee	a word meaning "a long time ago" or "once upon a time"
uqquu OOK-koo	it's hot