Under the Ice

Test what changes the light below a frozen lake.



Illustrated view beneath lake ice. Keep this activity on screen.

Teach it in 10 minutes

0–2 MIN **Predict from the surface**

Pause the original film at 0:13. Ask which patch would let more light through and why. Take two different predictions.

2–5 MIN **Choose a fair setup**

Pause the fair-test film at 0:18. Choose matched or uneven depths. Ask how changing depth and snow together would muddle the result.

5–10 MIN **Swap the snow in Snow Lab**

Commit a prediction before revealing values. Move snow to the other side while both sensors, sky, ice thickness and water clarity stay fixed.

Matched-depth trials

Simulated relative light units

	LEFT	RIGHT
Snow on right	40	10
Snow on left	10	40

"The lower reading followed the snow. Plant growth would need a separate test."

Ask how to test depth with the same snow cover above both sensors.

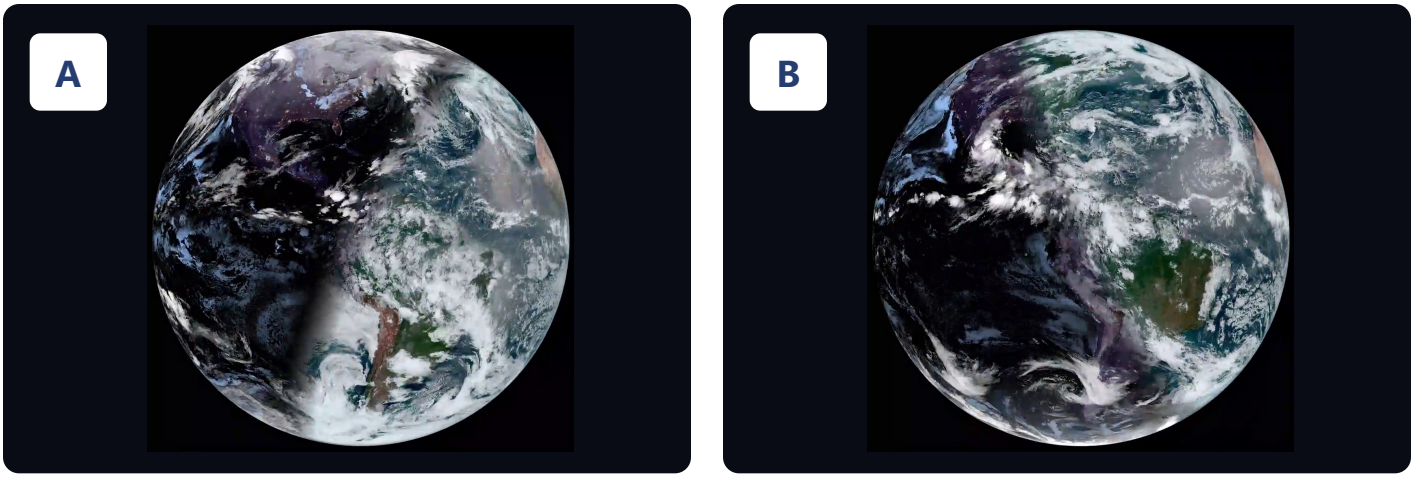
Films, activity and source

Watch the original Under the Ice
youtu.be/OLDz-jH4f4Q
Watch Which Test Is Fair?
youtu.be/mHsS2BU5rCo
Open the free Snow Lab
Milestone Teachers · no login
Read the USGS lake study
USGS publication 70234154

Scan to watch
youtu.be/mHsS2BU5rCo

Spot December from space

Use daylight and darkness in real satellite images as evidence.



GOES-16 GeoColor at 11:50 UTC. NOAA/NESDIS and CSU/CIRA. Cropped views.

Teach it in 8 minutes

0–2 MIN **Make an image claim**

Pause at 0:19. Students point to A or B, then trace where daylight ends near the top. Compare two claims before playing the reveal.

2–4 MIN **Name the evidence**

Resume through 0:33. Compare where darkness reaches farther north. At 1:13, predict which town, 50° N or 50° S, gets more December daylight.

4–8 MIN **Test with Seasons Explorer**

Compare Winnipeg's June and December daylight. Ask which 50° town gets the longer day in June, then have partners explain the reversal.

Listen for

"A is December. Darkness reaches farther into the north. In December, the Southern Hemisphere tilts toward the Sun and 50° S gets the longer day."

For support, give students the sentence stem "I chose __ because the night side __."

Films, activity and source

Watch Can You Spot December From Space?
youtu.be/urCDJnDlGYA

Open Seasons Explorer
milestoneteachers.com/labs/seasons-explorer

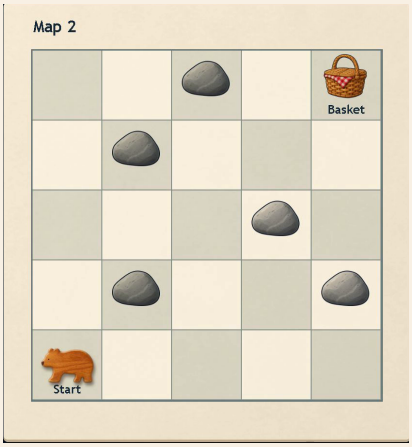
Open NOAA's GOES-16 source imagery
NOAA NESDIS · Satellites Watch the Arrival of Spring from Above

Get the free Seasons Diagnostic & Reteach
Teachers Pay Teachers · 17795793

Scan to watch
youtu.be/urCDJnDlGYA

Which arrow would you swap?

Run, fix and retest one sequence on Bear's 5 × 5 map.



Map 2 · Original code

→ → ↑ ↑ → → → ↑

One arrow moves Bear one square.

Move a counter, say the direction or point.

Map 2 from Bear's Map Code. The original route runs into a rock.

Teach it in 6 minutes

0–2 MIN **Set up the map**

Project Map 2 or print it from the free centre. Put a counter on Start. Model the first two right arrows with one move per arrow.

2–4 MIN **Stop at the rock**

Pause the film at 0:09. Ask children to point to the first card that sends Bear to the rock. Offer a right card and an up card.

4–6 MIN **Swap one card and retest**

Replay to 0:16 to see the swap. Keep every other arrow in order. Move Bear back to Start and run the full code to the basket.

Worked fix

Swap the fifth card from right (→) to up (↑). The new route is → → ↑ ↑ ↑ → → ↑. Bear reaches the basket.

Children can point to the fifth card and trace the revised move while a partner moves Bear.

Films, activity and source

Watch Which Arrow Would You Swap?
youtu.be/5gzClSbxSrI

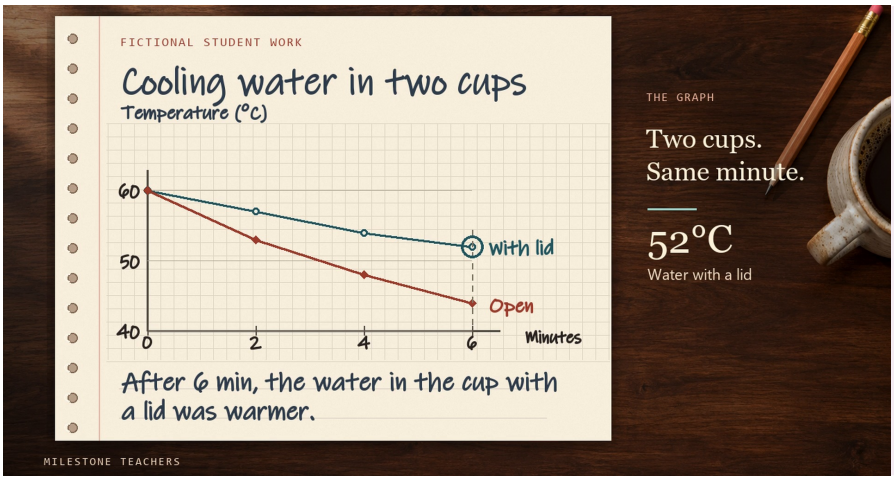
Get the free Bear's Map Code centre
Teachers Pay Teachers · 17787798 · use Map 2

Read Ontario's Kindergarten curriculum
2026 · Problem Solving and Innovating · B11 coding skills

Scan to watch
youtu.be/5gzClSbxSrI

From lab note to report card

Draft one family-readable comment that a piece of work can support.



Fictional science notebook from the film.

SIX-MINUTE ROW

52°C Cup with lid

44°C Open cup

The notebook states which cup stayed warmer.

Teach it in 8 minutes

0–2 MIN **Underline the evidence**

Pause at 0:25 after both readings. Compare temperatures at the same minute. Rewatch the notebook sentence and identify what it shows.

2–5 MIN **Write three specific moves**

Play through 1:03. Draft a strength, a key challenge and a practical next step. Tie each to the fictional notebook or graph.

5–8 MIN **Check each against the work**

Pause at 1:18. With a colleague, point to the evidence and the missing detail. Check that the next step is doable in the next lab.

Example comment

"In the cooling lab, you used your graph to identify the warmer cup. Your written comparison left out the temperatures. In your next lab, support your comparison with both readings from the same minute."

Use current-term evidence. This example practices Section 6.1.

Films, activity and source

Watch From a Lab Note to a Manitoba Report Card Comment
youtu.be/W8uEQ7fCZDQ
Read the 2026 Manitoba reporting policy, Section 6
Manitoba Education · PDF page 33 · Teacher Comments
Open the free Manitoba report card comments sampler
milestoneteachers.com/store/products/18170396

Scan to watch
youtu.be/W8uEQ7fCZDQ