Penguin poo speeds up Antarctic snow melt

LEVEL A2/B1



Photo: Derek Oyen / Unsplash

I. WARM-UP

1. What animal do you think is the cutest and why?
2. Have you ever walked on snow? What was it like?
3. Which colours feel hotter in the sun: dark or light?

II. KEY VOCABULARY

- **melt** — to change from solid to liquid because of heat
- **nutrient** — a substance that helps plants or animals grow
- **algae** — simple plant-like life that can grow in water or on snow
- **colony** — a group of the same animals living together in one place
- **absorb** — to take in light, heat, or liquid
- **bloom** — a fast growth of algae that covers an area
- **sample** — a small part taken to test or study something
- **predict** — to say what you think will happen in the future

III. READING

Scientists say penguin poo, called guano, can make Antarctic snow melt faster. The poo is full of nutrients that feed tiny plants called snow algae. In places with few nutrients, the algae looks red and grows slowly. Near penguin colonies, where there is more food for algae, it turns green and can bloom more quickly.

Green snow absorbs more solar energy, so the snow around it melts sooner. Researchers from the University of Colorado took snow samples near and away from colonies and compared the algae. Their study, published in the Journal of Geophysical Research: Biogeosciences, found more nutrients where green blooms grew.

Scientist Alia Khan says this effect is missing from current melt models for Antarctica. She predicts penguins will move closer to the South Pole as temperatures rise, which could spread green snow algae to new areas as birds walk across the snow.

Reading text adapted from reporting by **BBC News:** *"Why penguin poo can cause Antarctic ice to melt". Original article linked at* theenglishwire.c...

IV. COMPREHENSION QUESTIONS

1. Who did the research on penguin poo and snow algae?
2. What helps the snow algae grow faster near penguin colonies?
3. What happens when green snow absorbs more solar energy?
4. Where was the research about the green blooms published?
5. What does Alia Khan predict penguins will do as it gets warmer?

V. DISCUSSION

1. Would you like to see penguins in the wild? Why or why not?
2. What colours at school feel hotter in the sun? Why?
3. How could your class share this science with younger pupils?
4. What small actions help you care for nature where you live?



VI. GRAMMAR FOCUS

Subject & object questions

Subject questions ask about who/what does the action: Who/What + verb (no do/does/did). Object questions ask about the thing receiving the action: Who/What + do/does/did + subject + base verb.

*"**Who collects** the snow samples?"*

*"**What did our class compare** in science?"*

VII. GRAMMAR EXERCISE

Circle the correct option in each sentence.

1. Who (took the samples / did the samples take)? _____
2. What (scientists do call / do scientists call) penguin poo? _____
3. Who (predicts the move / does the move predict)? _____
4. What (guano does make / does guano make) melt faster? _____
5. Which samples (did you take / you did take) today? _____

Teacher's Notes

TEACHERS ONLY

These notes are designed to help you get the most out of this lesson. Please do not share this page with students.



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I. LESSON GUIDE

- Timing: 6–8 minutes warm-up, 8–10 minutes vocabulary, 8–10 minutes reading, 8 minutes comprehension, 8–10 minutes grammar, 10 minutes discussion.
- Pre-teach simple geography: Antarctica and the South Pole. Show two photos: red snow algae vs green snow algae, and elicit colour, cold, sunlight, and melt.
- Reading and discussion: Do a quick prediction game in pairs—what causes faster melt? After reading, run a class vote on the correct reason, then compare with the text before moving to discussion in small groups.
- Differentiation: Stronger students summarise the method (who, where, what samples). Others highlight two cause–effect links (nutrients → green blooms; green snow → faster melt).

II. DISCUSSION FACILITATION TIPS

1. Start with a show of hands, then pair students to give one reason for their choice.
2. If answers stall at “black is hotter”, prompt: shirts, seats, phones, playgrounds.
3. Put students in trios to plan a poster, video, or short talk—name audience and tool.
4. Make a quick list on the board, then ask for one new action each student can try.

III. EXTENSION ACTIVITIES

Poster: In pairs, design a 60-word poster explaining how green snow algae makes snow melt faster.

Experiment: As a class, test dark vs light surfaces under a lamp and write 4 sentence results.

IV. ANSWER KEY OVERVIEW

Comprehension questions: short factual answers from the text.

Grammar exercise: Subject & object questions

Discussion: open-ended. Accept any reasonable ideas supported by examples and reasoning.

Answer Key

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IV. COMPREHENSION QUESTIONS

1. Who did the research on penguin poo and snow algae?
   Researchers from the University of Colorado.
2. What helps the snow algae grow faster near penguin colonies?
   Nutrients from penguin poo help it grow faster.
3. What happens when green snow absorbs more solar energy?
   The snow around it melts more quickly.
4. Where was the research about the green blooms published?
   In the Journal of Geophysical Research: Biogeosciences.
5. What does Alia Khan predict penguins will do as it gets warmer?
   Move closer to the South Pole, which could spread green snow algae.

V. DISCUSSION

Open answers. Accept any reasonable ideas supported by examples and reasoning.

VII. GRAMMAR EXERCISE

Circle the correct option in each sentence.

1. Who (took the samples / did the samples take)? **took the samples**
2. What (scientists do call / do scientists call) penguin poo? **do scientists call**
3. Who (predicts the move / does the move predict)? **predicts the move**
4. What (guano does make / does guano make) melt faster? **does guano make**
5. Which samples (did you take / you did take) today? **did you take**

VI. GRAMMAR FOCUS

Key point: Subject questions ask about who/what does the action: Who/What + verb (no do/does/did). Object questions ask about the thing receiving the action: Who/What + do/does/did + subject + base verb. (Examples constructed.)

"**Who collects** *the snow samples?*"

"**What did our class compare** *in science?*"