Each day of the field trip, the LEARNZ Team shoot, edit and upload curriculum-rich videos which help students to feel right up close to the action.

For help and more information about LEARNZ videos, go to Help with Videos [1] in the LEARNZ Support [2] section.

Saturday and Sunday 1-2 November

1. My Journey to Antarctica - watch or download video [3] (58Mb mp4 file) or watch on Vimeo [4].
Go through security and jump aboard the C17 Globemaster aircraft destined for Antarctica.

1. Who are the crew for the C17 Globemaster?
2. How long was the flight and what could you see out of the window during the journey?
3. How cold was it when you arrived in Antarctica?

Next step learning: Work out the wind chill temperature for when you landed in Antarctica if the wind was recorded at 5 knots.

2. Staying Safe in Antarctica - watch or download video [5] (105Mb mp4 file) or watch on Vimeo [6].
Travel out on to the sea ice in the Hagglund and complete your Antarctic Field Training then join Shelley in the locker room to see what should be worn when out and about in Antarctica.

1. How is the thickness of sea ice measured and why is it important to know?
2. Why do you think it is important to wear lots of layers of clothing rather than just one extra warm layer?
3. What else do you need to remember when leaving Scott Base?

Next step learning: Find out more about the fabrics used to make the clothing that is supplied by *Antarctica New Zealand* and how it has been designed so that it is fit for purpose. You could design your own clothing suitable for use in Antarctica.

Monday 3 November

1. Flying to Cape Bird - watch or download video [7] (50Mb mp4 file) or watch on Vimeo [8].
Jump aboard the helicopter destined for Cape Bird and the Adelie penguin colony to begin your scientific work down here in Antarctica.

1. About how far was the journey from Scott Base and how fast was the helicopter going?
2. Which volcano could you see from the helicopter?
3. Where is Cape Bird located?

Next step learning: Why do you think some of the windows in the helicopter fogged up during the flight?

2. Why Cape Bird - watch or download video [9] (44Mb mp4 file) or watch on Vimeo [10].
Go down onto the sea ice and meet scientist Steve Wing from the University of Otago and find out why he chose to come to Cape Bird.

1. Why study Adelie penguins?
2. Where else is the science team going to take samples?
3. Why have these two sites been chosen?

Next step learning: Find out more about what penguins eat and how their food source might be affected by climate change.

3. Penguins - watch or download video [11] (59Mb mp4 file) or watch on Vimeo [12].
Take a closer look at the Adelie penguins in the colony at Cape Bird and find out why these birds are so important to the Antarctic marine ecosystem.

1. Where do Adelie penguins spend most of their time?
2. Where do penguins fit into the Antarctic marine food web?
3. How do penguins help the marine ecosystem?

Next step learning: What impacts do you think people have on the Antarctic marine food web and how could we reduce these impacts?

4. Collecting Guano - watch or download video [13] (96Mb mp4 file) or watch on Vimeo [14].
Join in and help collect a sample of penguin guano to help Steve with his science project.

1. Why is Steve collecting the penguin guano?
2. How are the samples collected?
3. What will happen to the samples after today?

Next step learning: Why would it be better for Steve to collect more samples rather than fewer?

5. Doing Science in Remote Places in Antarctica - watch or download video [15] (84Mb mp4 file) or watch on Vimeo [16].
Come into the hut at Cape Bird and find out how scientists keep their impacts to a minimum when working in the field.

1. What happens to human waste when out in the field?
2. What paperwork needs to be filled out by scientists so they have permission to work in particular parts of Antarctica?
3. How is the hut powered?

Next step learning: Design a hut that is suitable for eight scientists working out in the field in Antarctica.

Tuesday 4 November

1. Skidoo to Cape Evans - watch or download video [17] (34Mb mp4 file) or watch on Vimeo [18].
Put your skidoo training to good use by driving the skidoo out to Cape Evans to visit the scientists.

1. What is the speed limit on skidoo in Antarctica?
2. How did you know where to go on the skidoo?
3. What is the name of the hut at Cape Evans and why is it significant?

Next step learning: What would you need to be careful of while travelling on the sea ice on a skidoo?

2. Gearing up to Dive - watch or download video [19] (69Mb mp4 file) or watch on Vimeo [20].
Talk to Jim from the science team about the equipment they use to dive under ice and how they stay safe.

1. What equipment is used?
2. What do the divers wear?
3. How long are the dives?

Next step learning: Discuss the challenges of diving under sea ice.

3. SIMCO - watch or download video [21] (43Mb mp4 file) or watch on Vimeo [22].
Find out more about what SIMCO are, where they grow and how they contribute to the food web.

1. What is SIMCO?
2. How can you tell where SIMCO are growing?
3. What eats SIMCO and how does SIMCO contribute to the food web?
4. Next step learning: Find out how scientists know if animals are getting energy from SIMCO or phytoplankton from the open ocean.

4. Sampling SIMCO - watch or download video [23] (56Mb mp4 file) or watch on Vimeo [24].
Watch the divers collecting samples of SIMCO and listen as Jim explains the scientific process.

1. Why are the scientists collecting samples of SIMCO and photographing the ice?
2. Where is SIMCO mostly found?
3. What would make this research more accurate?

Next step learning: What technology could be used to help this research and why is this research important?

Wednesday 5 November

1. Sea Stars and Urchins - watch or download video [25] (70Mb mp4 file) or watch on Vimeo [26].
Leave the main building at Scott Base and walk across the snow to the wet lab to see what Kate Sparks has been working on.

1. Where does the Antarctic cushion star live?
2. Where do these Antarctic cushion stars fit into the food web?
3. What do these urchins use their spines for?

Next step learning: What do you think would happen to the Antarctic marine food web if there were fewer cushion stars?

2. Science in the Wet Lab - watch or download video [27] (52Mb mp4 file) or watch on Vimeo [28].
Take a closer look at one of Kate’s experiments on Antarctic sea stars and see how she is monitoring the response of these sea stars to warmer water.

1. What is Kate monitoring?
2. What is the temperature of the water that Kate is using in the experiment at the moment?
3. How many times does Kate want to repeat this experiment?

Next step learning: How is respiration rate related to metabolism and what do you think will happen to the Antarctic cushion stars in warmer water?

3. The fair test: science in action - watch or download video [29] (59Mb mp4 file) or watch on Vimeo [30].
Find out more about how science is done in a certain way to make sure that it is fair test and the results are accurate.

1. What is a control?
2. Why has Kate collected Antarctic cushion stars from more than one place?
3. How many sea stars is Kate sending back to New Zealand?

Next step learning: Design your own experiment to test the ability for an Antarctic animal to survive warmer oceans. Include a control and step by step method that could be repeated by someone else.

Thursday 6 November

1. The Benthic Community - watch or download video [31] (64Mb mp4 file) or watch on Vimeo [32].
Meet Sal Genovese and find out more about the unique animals that live on the sea floor below the sea ice in McMurdo Sound.

1. What does benthic mean and what sorts of animals live in the benthic community?
2. What do sessile (non-moving) creatures tend to eat?
3. What types of feeders are sea urchins compared with sea stars?

Next step learning: How do you think the animals that make up the benthic community have adapted to life in Antarctica. How do you think climate change could affect these animals and how could you test your theory.

2. Sampling the Sea Floor - watch or download video [33] (38Mb mp4 file) or watch on Vimeo [34].
See how the scientists are taking and recording samples of what's living on the sea

floor.

1. What are the scientists trying to work out?
2. How are results recorded?
3. What can Sal and his team do to improve the accuracy of their results?

Next step learning: Get involved in the Marine Metre Squared [35] programme to help survey the animals living on your local sea shore.

3. Ice Fishing - watch or download video [36] (63Mb mp4 file) or watch on Vimeo [37].
Come out on to the sea ice to meet Rebecca McMullin and discover how she has been catching fish from under the sea ice and what she will be using these fish for.

1. How does Rebecca catch fish from under the sea ice?
2. What does Rebecca use to attract the fish?
3. What does Rebecca want to find out from these fish?

Next step learning: Find out more about the otoliths which are sometimes called fish air bones or earstones that Rebecca talked about.

Friday 7 November

1. **Weddell Seals** - watch or download video [38] (50Mb mp4 file) or watch on Vimeo [39].
Make the most of your last day in Antarctica by heading out on the skidoo in search of seals.

1. Where did you find the Weddell seals?
2. Why did you not drive closer to the seal colony?
3. Why do you think the seals are here?

Next step learning: Find out more about Weddell seals and their behaviours.

2. **Weddell Seals in the Antarctic Food Web** - watch or download video [40] (61Mb mp4 file) or watch on Vimeo [41].
Catch up with Steve Wing in the Weddell seal colony and find out how these seals have adapted to life in Antarctica and how they fit into the Antarctic marine food web.

1. What adaptations do Weddell seals have that help them to survive in Antarctica?
2. What do Weddell seals eat and how do scientists know this?
3. Why is Steve interested in Weddell seals?

Next step learning: Find out what threatens the Antarctic Tooth fish and why this is of concern for the Antarctic marine ecosystem.

3. **A Week of Cool Science in Action** - watch or download video [42] (40Mb mp4 file) or watch on Vimeo [43].
Join Steve Wing back at Scott Base and think about the science work that has been done this week and why it is important.

1. What is at the base of the marine ecosystem in McMurdo Sound in the Ross Sea?
2. What has SIMCO been linked to and how is this link being measured?
3. What does Steve hope the outcome of this research will be?

Next step learning: Find out more about the Ross Sea and what's being done to protect this ecosystem.

4. **A Special Antarctic Treat** - watch or download video [44] (60Mb mp4 file) or watch on Vimeo [45].
Come and see what Shelley has discovered in the ice of the Erebus Ice Tongue.

1. How might this cave have formed?
2. What is a crevasse and why do they make walking on glaciers dangerous?
3. Where might you find ice caves in New Zealand?

5. **Field Trip Summary** - watch or download video [46] (55Mb mp4 file) or watch on Vimeo [47].
Take some time at the end of the field trip to reflect on what you have learnt about Antarctica and the Antarctic marine ecosystem.

1. What have been the highlights of this field trip for you and why?
2. What questions do you still have about Antarctica and how could you find the answers to these?
3. Help your teacher to fill in the online evaluation [48] form for this field trip?

Source URL: http://www.learnz.org.nz/scienceonice144/videos

Links
[1] http://www.learnz.org.nz/support/videos
[2] http://www.learnz.org.nz/support
[3] http://www.learnz.org.nz/sites/learnz.org.nz/files/si144-d00-01-my-journey-to-antarctica.mp4
[4] http://vimeo.com/110732132
[5] http://www.learnz.org.nz/sites/learnz.org.nz/files/si144-d00-02-staying-safe-in-antarctica.mp4
[6] http://vimeo.com/110733218
[7] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d01-01-flying-to-cape-bird.mp4
[8] http://vimeo.com/110831243
[9] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d01-02-why-cape-bird-v2.mp4
[10] http://vimeo.com/110831821
[11] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d01-04-penguins.mp4
[12] http://vimeo.com/110832408
[13] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d01-05-collecting-guano.mp4
[14] http://vimeo.com/110840048
[15] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d01-02-doing-science-in-remote-places-in-antarctica.mp4
[16] http://vimeo.com/110833932
[17] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d02-01-skiddoo-to-cape-evans.mp4
[18] http://vimeo.com/110922310
[19] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d02-02-preparing-to-dive.mp4
[20] http://vimeo.com/110922583
[21] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d02-03-simco.mp4
[22] http://vimeo.com/110922891
[23] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d02-04-sampling-simco.mp4
[24] http://vimeo.com/110941416
[25] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d03-01-sea-stars-and-urchins.mp4

[26] http://vimeo.com/111031269
[27] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d03-02-science-in-the-wet-lab.mp4
[28] http://vimeo.com/111048712
[29] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d03-03-the-fair-test-science-in-action.mp4
[30] http://vimeo.com/111031826
[31] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d04-01-benthic-sea-creatures.mp4
[32] http://vimeo.com/111134326
[33] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d04-02-sampling-the-sea-floor.mp4
[34] http://vimeo.com/111134579
[35] https://www.mm2.net.nz/
[36] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d04-03-ice-fishing.mp4
[37] http://vimeo.com/111134841
[38] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d05-01-weddell-seals.mp4
[39] http://vimeo.com/111325515
[40] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d05-02-weddell-seals-in-the-antarctic-food-chain.mp4
[41] http://vimeo.com/111327604
[42] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d05-03-a-week-of-cool-science-in-action.mp4
[43] http://vimeo.com/111325951
[44] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d05-04-a-special-antarctic-treat.mp4
[45] http://vimeo.com/111326278
[46] http://www.learnz.org.nz/sites/learnz.org.nz/files/Field%20trips/si144-d05-05-field-trip-summary.mp4
[47] http://vimeo.com/111347517
[48] http://www.learnz.org.nz/scienceonice144/evaluation-prize