

Arctic Live preparation



Age 11-14



60 minutes

Curriculum links

- Study the Arctic as a comparative habitat
- Learn how professional scientists work

Resources



Slideshow

Arctic Live preparation 7-11



Student Sheet a

Student questions

Student Sheet b

Thinking hats

Student Sheet c

Arctic researcher hunt



Thinglink

What animals live in the Arctic?



360° Gallery

Expedition inside an Arctic glacier



Subject Update

How to: Use the six thinking hats



Subject Update

4 ways to use VR in the classroom

Lesson overview

In this lesson, students begin to develop their questioning skills while interacting with 360 multimedia. Students learn more about the environment and animals which live there before using navigational terminology and six-figure grid references in an Arctic researcher hunt. Finally, students understanding is assessed through a quiz.

Lesson steps

Learning outcomes

1. Introduction (5 mins)

Students are introduced to the lesson and learning outcomes.

- Identify Svalbard on a map

2. Arctic question generation (5 mins)

Students use 360° images of the Arctic to help them formulate their own questions about what life is like living and working in the Arctic.

- Formulate higher order questions

3. Arctic explorer questions (20 mins)

Using de Bono's six thinking hats, students construct their own questions.

- Formulate higher order questions

4. What is the Arctic like? (10 mins)

Students are introduced to the weather conditions and animals that are found in the Arctic.

- Describe the weather conditions in the Arctic

- List animals that live in the Arctic

5. Why go to the Arctic? (5 mins)

Students are introduced to two scientific researchers and learn why research in the Arctic is important.

- Describe why research in the Arctic is important

6. Arctic researcher hunt (10 mins)

Students identify where the Arctic researchers are on the map using navigational terms and six-figure grid references.

- Describe positions of objects on a map using key terms.

- Use six figure grid referencing.

7. Arctic Quiz (5 mins)

Students complete a quiz testing their knowledge of the Arctic.

Extension or home learning

List five higher order questions you would like to ask an Arctic explorer.

TEACHER GUIDANCE (page 1 of 4)

ARCTIC LIVE PREPARATION 11-14

Step Guidance

Resources

1
5
mins



Students are introduced about the upcoming live lesson to the UK's Arctic Research Station in Ny-Ålesund, Svalbard. They learn that in this lesson they will be going on a virtual field trip to gather information and come up with questions to ask the scientists.

- Using slide 2, set up the lesson and learning outcomes.
- Showing slide 3-5, explain to students that they will be connecting virtually to a scientist living and working in the UK's Arctic Research Station, highlighted on the map.

Slideshow
Slides 1-5

2
5
mins



Step 2 sees students develop questions from stems using 360° images. Students gain a greater sense of what the Arctic is like as they generate their own questions about this unusual environment.

- Using slide 6, introduce students to sentence stems to structure their questioning. Encourage students to come up with less fact-based questions. These can be googled. Instead, encourage them to personalise their questions. For example, rather than asking 'how many polar bears are in the Arctic?' A student may want to ask, 'how many polar bears have you seen near the research station?'
- Using slide 7, project the 360° Gallery Expedition inside an Arctic glacier onto your classroom board.
- Allow students to lead the activity by having assigned roles. Select one student to navigate the 360° images, using their finger on the classroom board. Select another student to be responsible for selecting students, who have their hands up, to share their questions to be written on the board.
- Showing slide 6 encourage student reflection by asking students, what level questions did you ask?

Slideshow
Slides 6-7

Gallery
[Expedition inside an Arctic glacier](#)

Subject Update
[Four ways to use VR in the classroom](#)



To use 360 videos on your classroom board effectively you will need good bandwidth so that the video loads. You will also need a touch sensitive SMART board. Check this before the lesson.

If you do not have a touch sensitive SMART board, position the student who is navigating at your computer allowing them to use the mouse to move around the video.

TEACHER GUIDANCE (page 2 of 4)

ARCTIC LIVE PREPARATION 11-14

Step Guidance

Resources

3
20
mins



Step 3 sees students develop questions using thinking hats.

- If you have never used thinking hats with your class, familiarise yourself with the concepts by reading the Subject Update: How to use thinking hats to generate questions.
- Hand out Student Sheet a.
- Print off Student Sheet b and place on six class tables (you will have to adjust this activity depending on the number of tables in your classroom).
- Ask students, what can you see on your tables? Students will point to the images of the hats.
- Using slide 8, explain that the hats help us to think in a different way.
- Tell students that they will be working as a whole table to come up with questions about the Arctic, life in the Arctic, and Arctic scientists.
- Explain that students will have two minutes at each table to come up with questions, appropriate to the hat on that table, which they write down on Student Sheet a. Let students know that when you say a key phrase, such as “change hat”, they must stand up, tuck in their chair, then walk clockwise to the next table.



If you have access to pads, chromebooks, or computers you can place one on each table and allow students to view the galleries and generate questions independently without moving around the room.

Slideshow
Slide 8

Student Sheet a
Student questions

Student Sheet b
Thinking hats

Gallery
[Expedition inside an Arctic glacier](#)

Subject Update
[How to: Use the six thinking hats](#)

4
10
mins



In step 4, students' questions relating to the Arctic weather conditions and animals that live there are answered.

- Showing slide 9, introduce the question, what is the weather like in the Arctic? Link this to a student who may have asked a similar question.
- Using slide 9-11, students learn about temperature, wind, and light in the Arctic.
- Assess student's knowledge by asking them, how would you describe the Arctic to an alien? This can be targeted at a specific student or done in pairs then allowing students to feedback to the whole class.
- Now that students are aware of the conditions within the Arctic, they consider what life there is in the Arctic.
- Showing slide 12 ask students, what animals might live in the Arctic?
- Show students the Thinglink What animals can be found in the Arctic?
- Promote student engagement by asking questions like, how big do you think this animal is? What colours is it? What do you like about this animal?

Slideshow
Slides 9-12

Thinglink
[What animals live in the Arctic?](#)

TEACHER GUIDANCE (page 3 of 4)

ARCTIC LIVE PREPARATION 11-14

Step Guidance

Resources

- Once you have shown several Arctic animals ask students, can you see any similarities between the animals?
- Students ought to be able to recognise that several of the animals have fur and blubber for warmth and are white to camouflage.

5
5
mins



Step 5 focusses on why the scientist need to go to the Arctic. Students are introduced to some Arctic scientists, their research, and what they're looking forward to during their trip to the Arctic.

- Use slide 13 and 14 to introduce two Arctic researchers to the students. Explain that the Arctic is a good place for us to learn about human impact on the environment. Three common things that scientists research in the Arctic are plastic pollution, ocean acidification, and climate change.
- Read the researchers comments a paragraph at a time, either teacher or student led, and check students understanding with comprehension questions. For example, what is Dr Ceri Lewis' favourite thing about the Arctic?

Slideshow
Slides 13-14

6
10
mins



Step 6 is a fun activity where students must locate Arctic researchers who are on their way to the UK's Research Station in Ny-Ålesund, Svalbard. They will develop navigational language and grid referencing skills.

- Showing slide 10 ask students, what can you see? Students should recognise the image as a map.
- Explain to students that the Arctic researchers are on their way to the Arctic but need some help getting there. Hand out student sheet c.
- Tell students in question one they will be helping the researchers by letting them know where they are positioned relative to a major landmark using navigational language (i.e. NNW SSE ENE WSS).
- Ask students to begin the activity and circulate the room supporting where necessary.
- Once several students have completed question one, call the classes attention so that you can give direction for question two.
- Explain to students that describing the location of things on a map can be confusing using words so cartographers (map makers) have made things simple by using numbers called grid references. Tell students that each box has four numbers that give it a unique number. Give an example using the image and show students that the first two numbers are from the bottom (x-axis/eastings) and the second two numbers are derived from the side (y-axis/ eastings). For example, 11_21_.

Slideshow
Slides 15-17

Student Sheet c
Arctic animal grid referencing hunt

TEACHER GUIDANCE (page 4 of 4)

ARCTIC LIVE PREPARATION 11-14

Step Guidance

Resources

- Tell students that we are after six numbers. To do this they must imagine the box where the object sits is divided by ten along the bottom and ten along the sides. Again, they go along the bottom then the top to get two more numbers to identify the object's location. If the object was in the centre of the box, the numbers would be 55. These are then added to the original four numbers. For example, 11_21_ becomes 115 215.
- Hand out student sheet 1a and ask students to complete the activity.
- Circulate around the room supporting students access the activity.
- After most students have completed the activity review the answers using slide 11.

7

5
mins



In step 7, students can challenge their understanding of the Arctic through a quiz.

- Before the quiz have all your students stand up.
- Show the first Arctic quiz question and ask students to point or move to the left or right depending on whether they think the statement is true or false.
- Reveal the answer on the next slide. There is an opportunity to debrief any surprises or misunderstandings after each question.
- Repeat this process for all the questions in the Arctic quiz.

Slideshow
Slides 18-27

+

20
mins



After the lesson students will have a better understanding of the Arctic environment and animals which live there.

Tell students that there is a research station in the Arctic where scientists are doing research on topics such as climate change, plastics, and ocean acidification. Ask students to come up with five questions each which they would like to ask the Arctic researchers. These can be modelled on the stems used earlier in the lesson.

The best five student questions can be pre-submitted through the Encounter Edu account page along with the students' names. Additional questions can be shared on the day of the live event through YouTube Live Chat.

Slideshow
Slides 28