


ANTARCTICA - Project Work File

INTRODUCTION

Our task on this assignment was to present an intercultural topic to our colleagues. After some deliberations, we decided to introduce Antarctica. Although Antarctica itself doesn't have a native human population, it is a unique continent, that seven nations claim different parts of; New Zealand, Australia, France, Norway, the United Kingdom, Chile, and Argentina. Antarctica is the only continent with no permanent human habitation. There are, however, permanent human settlements, where scientists and support staff live for part of the year on a rotating basis. But aside from its rich and interesting demographic population, Antarctica is also important interculturally, due to its role in climate change. Antarctica has the largest single piece of ice on Earth. The effect of global warming would result in the ice melting, which would raise global sea levels, and cause flooding and catastrophe around the world. The ocean surrounding the continent also support masses of the world's sealife – including 15 species of whale and dolphin, and five species of penguin. The nutrient-rich waters encourage blooms of tiny plankton, the basis of the ocean food chain. Due to all of this, we think that spreading information and raising awareness about Antarctica is extremely important, and can influence the trajectory of the destiny of our planet. That's why we wanted to bring this topic closer to our students, and for this task, we created the following Project Work File. It contains a collection of activities on the topic of Antarctica, two detailed activities for students, a lesson plan that we envisioned for students of 6th grade, but can be adapted to other levels of difficulty, and the accompanying PowerPoint presentation.

1.) POWERPOINT PRESENTATION

We uploaded the file in the online classroom.

 JIMO Antarctica_Belak, Šenk

2.) COLLECTION OF ACTIVITIES

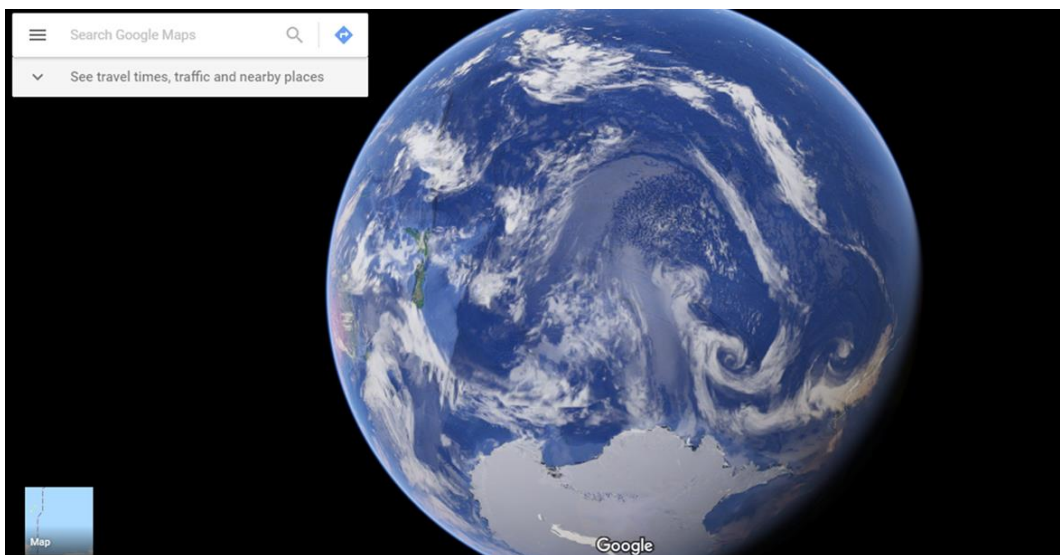
1. Conceptual links - What do you think of when you see this picture?



We show the students a collection of different pictures (or gif animations) presenting Antarctica. We ask them “What do you think of when you see these pictures?” And by that we try to find out which continent/country we are going to explore during the lesson.

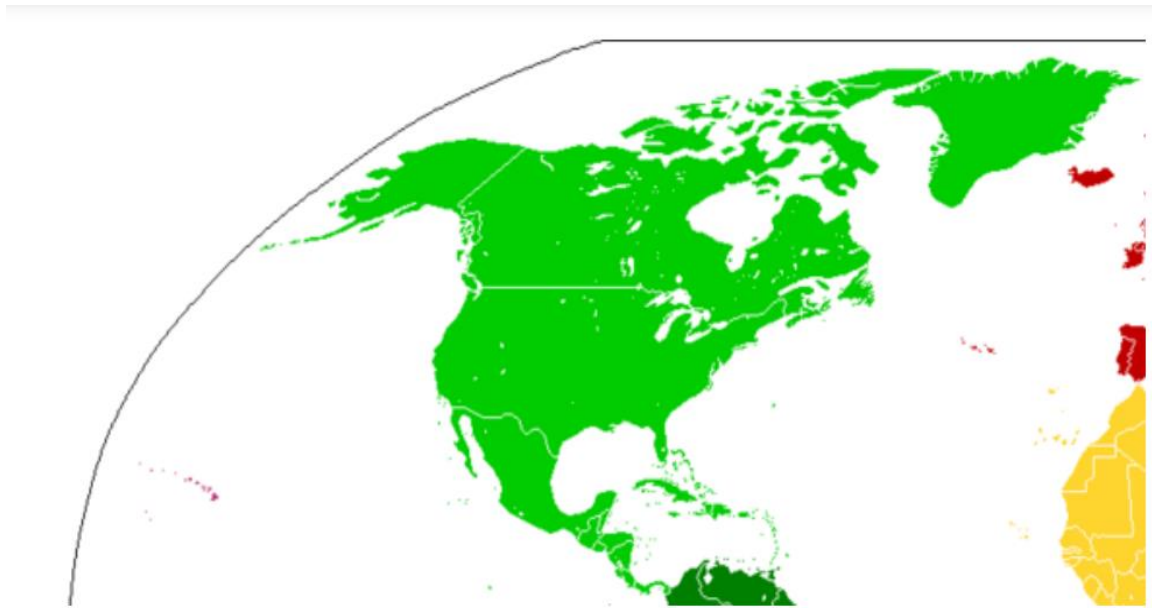
2. Google Earth

We open the Google Earth on this link ([Google Earth](https://earth.google.com/web/@-79.63364643,9.7018883,-5004.01551367a,22256755.80849409d,35y,335.68543762h,0t,0r) or <https://earth.google.com/web/@-79.63364643,9.7018883,-5004.01551367a,22256755.80849409d,35y,335.68543762h,0t,0r>) and ask one of the pupils if they can find Antarctica on the globe.

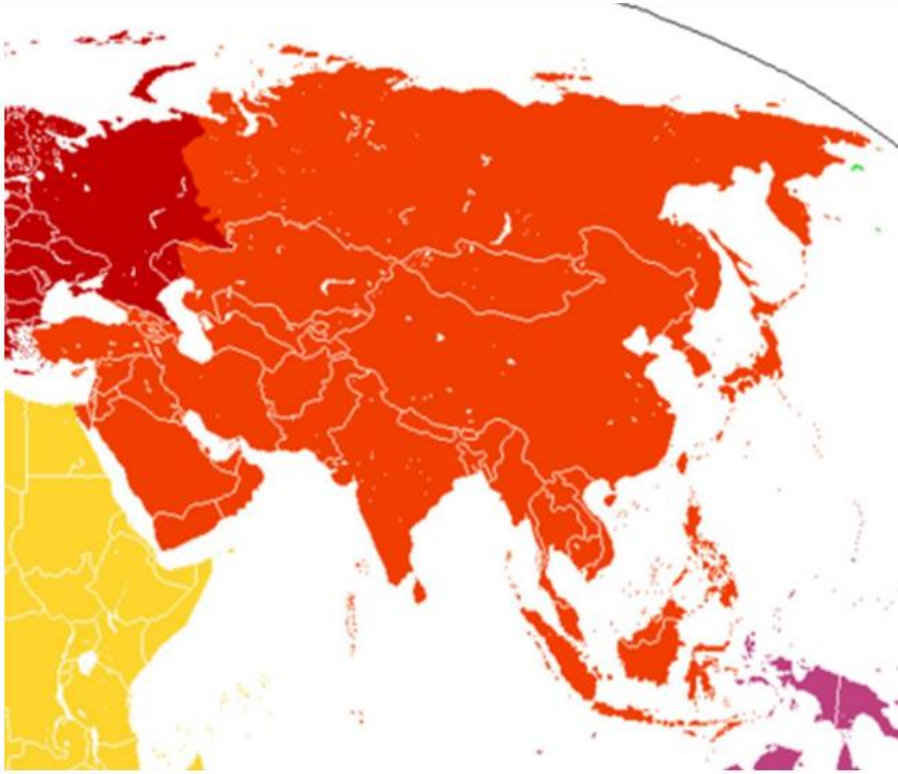


3. Making a Map of the World

We print each continent on A3 format (or bigger) and give it to our students. They have to make a map of the world on the blackboard, so they have to name the continent they have and put it in the right place in the frame on the blackboard. At the end, we check if we have put together an appropriate map of the world and compare it with the correct picture on the presentation.







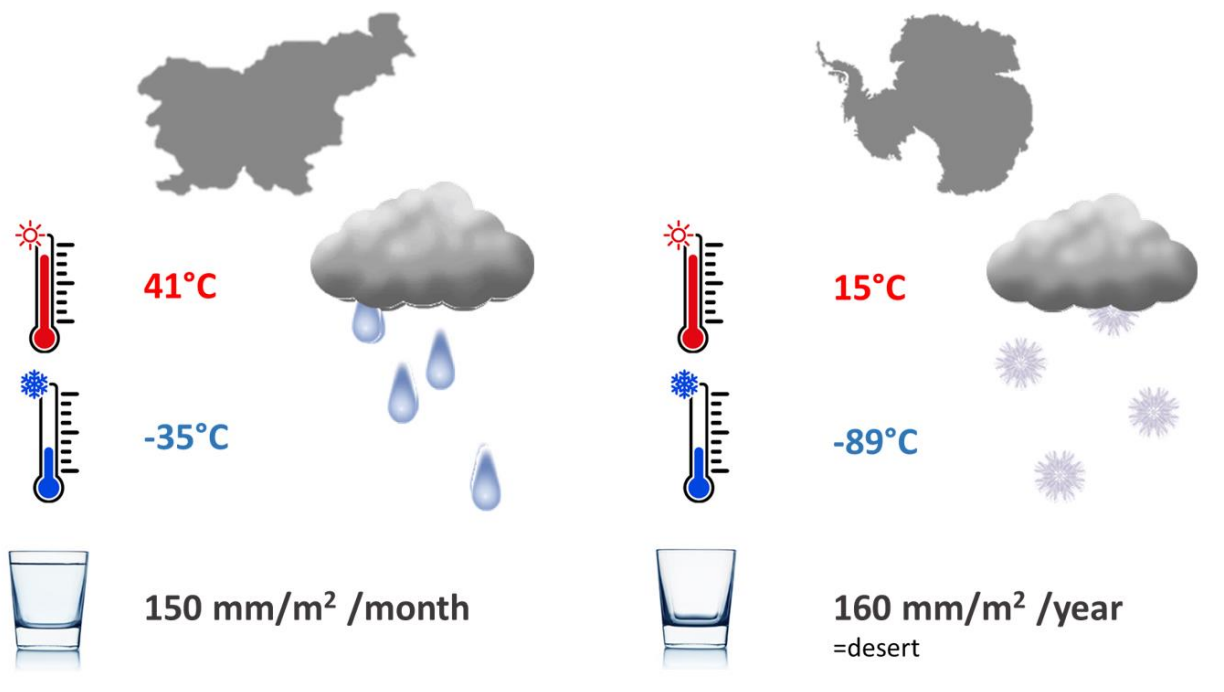
4. True or False statements?

First, we distribute pointers with a tick and a cross on each side to the students. Each student gets one card. We explain the instructions to them - when the statement about Antarctica is correct, they raise a tick, when the statement is wrong, they raise a cross. We present various claims on a PowerPoint presentation. After the students raise their cards, we tell the correct answer and explain the fact in more detail.

Facts are for example:

1. Antarctica has some of the driest places on earth. = TRUE

We explain that the Dry Valleys in Antarctica are **the driest places on earth**. With such low humidity and moisture on this portion of the continent, snow and ice cannot even accumulate, which leaves the valleys as just a dusty expanse of dirt. And make a quick comparison between Slovenia and Antarctica.



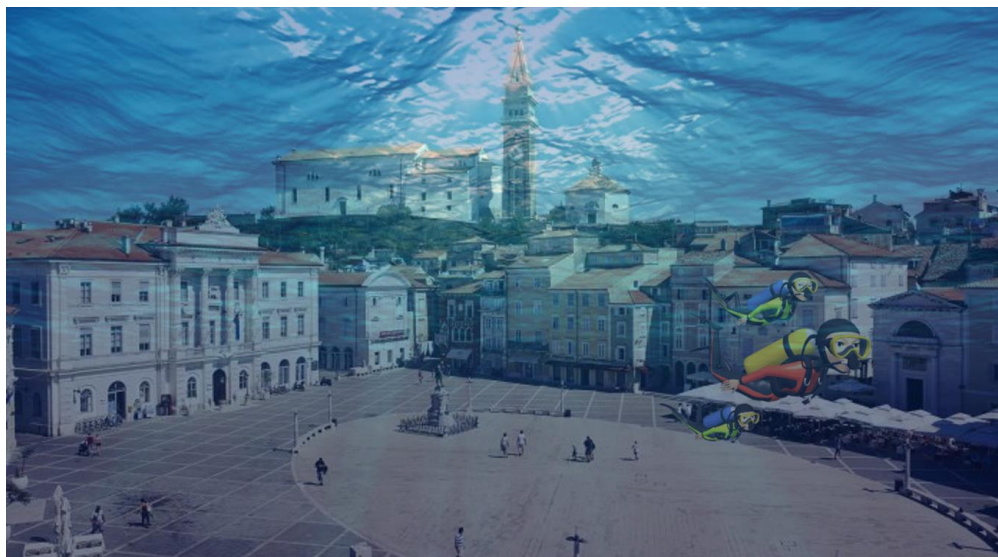
2. Antarctica is the windiest place on earth. = TRUE

We explain that Antarctica is, on average, **the windiest place** on earth. Scientists exploring this southerly landmass have reported wind speeds that have reached up to 200 miles per hour. The windiest City on Earth is Wellington, New Zealand.

3. Antarctica has about 50% of the planet's freshwater ice. = FALSE

The Antarctic Ice Sheet is the single **biggest mass of ice** in the world and can sometimes be up to four miles thick. The continent as a whole contains about 90% of the planet's freshwater ice and around 70% of the total fresh water on earth!

It holds 90% of all the ice on the planet. This is extremely important to climate change given that if it all melted, the oceans would rise by huge amount- 60 to 65 meters. This means that the sea would reach to the top of the bell tower of the church above Tartini Square in Piran.




4. Antarctica is roughly the size of the USA. = FALSE

We explain to the students, that Antarctica covers 14 million km², which makes it almost twice the size of the United States. We can demonstrate this with a photo comparison.




5. Animal Cards

Each pair is given two cards - each student in the pair gets one. The first student has to look at the card with information about the given animal - he/she has 1 minute to memorize all the information (we start the timer on the PowerPoint presentation). When the time is up, the second student asks the first one questions from the second card. At the end, each pair briefly presents their animal and tells the others what they found most interesting about it.



EMPEROR PENGUIN




The biggest penguin in the world.


They can't fly.

Adults have no natural enemies. Young birds can be attacked by a robin's gull.


The only land animal that lives in Antarctica in summer and winter.



Basic information

 Lifetime - 20 years.

It feeds on fish, shrimp and squid.

 Between 1.1m and 1.3m tall.

It can dive 300m deep.

Try to answer these questions about **the emperor penguin**:

1. What is the average life span of the emperor penguin?
2. How many chicks (baby penguins) are there in the picture?
3. What does the emperor penguin eat?
4. Can the emperor penguin fly?
5. True or false: The emperor penguin lives in Antarctica only in the winter.
6. How tall can the emperor penguin grow?

THE POLAR BEAR



Thick fur and a thick layer of fat protect it from the cold.



To cool off, he often bathes in the sea.

It lives in and alongside the Arctic Ocean.

Basic information



Life span - 30 years.



It preys on fish, seabirds and seals.

Adult males weigh from 400 to 600 kg. Females weigh from 200 to 300 kg.





It is the third largest land animal in the world.

Try to answer these questions about **the polar bear**:

1. What is the average life span of the polar bear?
2. What does the polar bear eat?
3. Where does the polar bear live?
4. What does the polar bear do to cool off?
5. What protects the polar bear from the cold?
6. Who weighs more; the male or the female polar bear?

The largest animal on earth.

BLUE WHALE





Blue whales are mostly solitary, so they live alone or in pairs.

They can eat up to 8 tons of food per day.

They stay in Antarctica for half a year to feed. They spend the second half of the year in tropical waters.


Basic information

 Lifespan - 80 years.

 They feed on small crustaceans.

They can weigh up to 160 tons (equal to 30 adult elephants).

They grow up to 30m in length.



Try to answer these questions about **the blue whale**:

1. What is the average life span of the blue whale?
2. What does the blue whale eat?
3. How much can an adult blue whale weigh?
4. Does the blue whale stay in Antarctica for the whole year?
5. How long can the blue whale grow?
6. Do the blue whales live in bigger groups?

CRABEATER SEAL



They are classified as marine mammals, as they breathe with lungs, and feed on milk.

They spend most of their lives in the open sea.



Basic information



Life expectancy - up to 56 years.



They feed on fish, squid, shellfish and crustaceans.

It is the most widespread type of seal. There are 30 million of them in the world.

They often find a sheet of ice that they carry across the sea. They rest on it or give birth to the young on it.

Try to answer these questions about **the crabeater seal**:

1. What animal group are the crabeater seals classified as? Why?
2. Where do the crabeater seals spend the most of their lives?
3. What is the average life span of the crabeater seal?
4. What does the crabeater seal eat?
5. Why do crabeater seals like to find a sheet of ice?
6. How many crabeater seals are there in the entire world?

6. A Day in the Life

We tell students they will have to work in groups and that they have to imagine a day in the life as a researcher on a research base in Antarctica. We give them 3 minutes of time to brainstorm- we put some photographs on the PowerPoint presentation to help them.



Each group presents their ideas, and we discuss them as a class.

3.) ACTIVITIES FOR CHILDREN

1.) A day in the life

Name of the activity: A day in the life of a researcher in Antarctica.

Aim of the activity: To raise awareness and brainstorm in a group about the daily life of a person, living in a completely different environment (in Antarctica).

Age of learners: approx. 9-14 years old.

Approximate length of the activity: 20 minutes (3 minutes of introduction time, 10 minutes of group brainstorming, 7 minutes for group presentation)

Description of the activity:

In this activity, students are first divided into smaller groups, depending on the size of the class. The teacher then introduces the activity and gives instructions to the students. They have 10 minutes to brainstorm about what a day in the life would look like, if they would work as a meteorology researcher on a research base in Antarctica. The teacher presents photographs on the PowerPoint slideshow, that guide and inspire the group brainstorming. The students are also allowed to write their ideas on a piece of paper, that the teacher has prepared. After the 10 minutes, students present their ideas in groups, following the photographs for inspiration. The teacher regulates the group reports and simultaneously adds any suitable facts and information to the ideas.

Additionally to the photographs on the slideshow, the teacher can use these guidelines for guidance in the discussion:

1. Morning:

With 24 hours of darkness the Circadian rhythm can go haywire. Every morning you can sit in front of a bright light for half an hour, in order to affect your melatonin levels and make you feel more awake. Residents don't have access to unlimited supplies of water, so they must melt snow during the winter. A team has to dig ice for over half an hour to melt down for water. In the summer, they use pipes to extract water from artificial lagoons that gather melted snow. Staff at the base all fix their own breakfast. The person on the night shift usually makes fresh bread.

The type and amount of clothing needed to stay warm and dry depends on the time of the year, location, and what sort of activity you are doing. Buildings on the station are heated to around 18°C, so normal clothes (such as jeans and t-shirt) can be worn. Outside on the ice during summer, expeditioners have long woollen underwear, trousers and a shirt with a windproof layer on top. In winter, they wear lots of layers topped with a thick, quilted freezer suit. Layering works by trapping air within the clothing. It is important that clothing fits properly. If clothing is too big, movement will create a bellows effect causing warm air to leave and cold air to replace it. If clothing is too tight, you will not have enough air trapped to stay warm.

2. Work

A typical day would start with putting on the snow suit which is like being swaddled in a blanket and walking across the snow to the meteorology building. The first task would be the nine o'clock weather observation and you would continue doing them every three hours until three in the afternoon. You have to launch the weather balloon, fill it with helium and then release it. Sometimes it is quite a battle against the wind to get it out of the shed. But once it is up in the sky, it measures temperature, wind and pressure.

3. Lunch

The average temperature in winter is about minus 35 Celsius. The chef is the most popular person on the base as food is very important in the cold. Though the station's chef does have to get inventive with rations of dried meat and vegetables, it can be weird eating lunch while it's pitch black outside.

4. Free time

Boredom is kept at bay with a range of extra-curricular activities, like listening to audio books in the library, learning foreign languages, and watching movies. In the depths of winter there's not a lot to do so they have to get inventive. You can spend your evenings knitting presents or making cards. Sometimes the person on the night shift would wake other researchers at two in the morning. They'd wrap up warm, grab their cameras and head outside to see the aurora. White, green and orange lights would flicker across the sky. Aurora occurs in an oval around the magnetic poles in both hemispheres. It is called aurora australis in the Southern Hemisphere, and sometimes referred to as the 'southern lights'. It is called aurora borealis in the Northern Hemisphere, and sometimes referred to as the 'northern lights'. Seen from the ground, aurora are often aligned east-west and appear in the form of a shimmering curtain. The aurora may extend hundreds of kilometers above this lower border.

Language level of learners:

This activity relies on verbal discussion, so the learners must be conversationally fluent in the language. It was designed for practicing conversational English, but can be carried out in the native language of the learners, if they are not fluent in English yet.

Skills practised: listening and speaking (optionally reading and writing).

Vocabulary practised: Conversational English.

Materials needed:

- Powerpoint presentation with pictures for guidance
- Paper and writing utensils (optional)

Cross – curricular links:

Along with practicing English, this activity also includes practicing social communication skills, as well as geography and biology topics.

FREPA/CARAP descriptors: S3, S4, S5, S6, S7.3

How the activity develops intercultural awareness:

The activity encourages the students to imagine living a daily life as someone that lives in an entirely different environment as their own. With that, the learners can also notice the similarities and differences between their daily lives, and raise awareness of differences between cultures or living in different environments.

Classroom organization: group work

Possible pre- and post- activities:

Depending on the age of our students, we can prepare an introduction to the topic by watching a youtube video, about the daily life of researchers in Antarctica, which helps with the direction of brainstorming and gives ideas to students.

- Example: 24 hours on a research station in Antarctica
https://www.youtube.com/watch?v=Y9gk1n_F0oM

We can also extend the activity, by asking the students, to write down their ideas on paper.

Variations:

We could also print the guidance photographs, so that the students could annotate the photographs directly and gain more visual support.

We could divide the brainstorming to different parts of the day (morning, daytime, evening, nighttime) or different topics (food, hygiene, work, fun), so that the brainstorming could be more focused, and that students would pay more attention or interest in the report of the brainstorming.

2.) Animal cards

Name of the activity: Animal cards

Aim of the activity: The goal of this activity is for students to learn about animals that live in polar regions. At the end of this activity, we want them to be able to list the animals, tell where they live and tell at least one interesting fact about each animal. We also want the students to understand and explain why the penguin and the polar bear cannot meet.



(Because they live at the opposite poles - the polar bear at the North pole and the penguin at the South pole. This picture is just a photomontage.)

Age of learners: around 9-14 years

Approximate length of the activity: 5-10 minutes

Description of the activity: Each pair is given two cards - each student in the pair gets one. The first student has to look at the card with information about the given animal - he/she has 1 minute to memorize all the information (we start the timer on the PowerPoint presentation). When the time is up, the second student asks the first one questions from the second card. At the end, each pair briefly presents their animal and tells the others what they found most interesting about it.

Language level of learners: Low to Advanced Beginner

Skills practised: listening, speaking and reading

Vocabulary practised: lifespan, weight, grow, length, solitary, whale, seal, polar bear, penguin, expectancy, widespread, mammals, enemies, shrimp, squid, dive, land, fur, fat, seabirds, male/ female ...

Materials needed: cards with information about different animals and cards with questions about them

Cross – curricular links: biology, mathematics, geography

FREPA/CARAP descriptors: S3.3, S5, S7.1, S7.2, S7.3

How the activity develops intercultural awareness: In this activity, children realize how similar and yet extremely different, these animals are. We often do not distinguish between them at all and do not know in which part of the world they live.

Classroom organisation: pair work and whole-class

Possible pre- and post- activities: researching encyclopedias, looking for pictures, videos and interesting facts on the Internet... about these and other polar animals.

Variations: With more or less questions, with different (levels of) vocabulary, more or less time given.

4.) LESSON PLAN FOR TEACHING THIS TOPIC TO CHILDREN

Lesson plan

Grade	6th grade
Unit name	Polar regions
Topic	Antarctica
Lesson goals	<ul style="list-style-type: none"> - Students revise vocabulary about landscape and nature, - Students use familiar vocabulary and adjectives to make short simple descriptions about live in polar regions (Antarctica)
Materials used	Shapes of continents, magnets, true/false cards, animal cards (information and questions), PowerPoint presentation (computer and projector)
Teaching methods and techniques	Communication method, audio-visualized method, Collaborative learning, Learning by discovery
Correlation with other subjects/ Cross – curricular links:	Biology, mathematics, geography, history, science
Assessment and evaluation	Formative - monitoring, asking questions, intra group dialogues with students
Lesson time	45 minutes

Teaching-learning activities	Activities
Introduction part- 10 minutes	<p>We show the students a collection of different pictures (or optionally gifs) presenting Antarctica. We ask them “What do you think of when you see these pictures?” And by that we try to find out which continent/ country we are going to explore during the lesson.</p> <p>We open the Google Earth and ask one of the students if they can find an Antarctica on the globe.</p> <p>We print each continent on the A3 format (or bigger) and give it to students. They have to make a map of the world on the blackboard, so they have to name the continent they have and put it in the right place in the frame on the blackboard. At the end, we check if we have put together an appropriate map of the world and compare it with the correct picture on the presentation.</p>
Main part- 25 minutes	<p>First, we distribute pre-prepared pointers with a tick and a cross on each side to the students. Each student gets one card. We explain the instructions to them - when the statement about Antarctica is correct, they raise a tick, when the statement is wrong, they raise a cross. We present various claims on a PowerPoint presentation. After</p>

	<p>the students raise their cards, we tell the correct answer and explain the fact in more detail.</p> <p><i>Facts are for example:</i> <i>Antarctica has some of the driest places on earth. = TRUE</i> <i>We explain that the Dry Valleys in Antarctica are the driest places on earth. With such low humidity and moisture on this portion of the continent, snow and ice cannot even accumulate, which leaves the valleys as just a dusty expanse of dirt. And make a quick comparison between Slovenia and Antarctica.</i> <i>Antarctica is the windiest place on earth. = TRUE</i> <i>We explain that Antarctica is, on average, the windiest place on earth. Scientists exploring this southerly landmass have reported wind speeds that have reached up to 200 miles per hour. The windiest City on Earth is Wellington, New Zealand.</i></p> <p><i>Antarctica has about 50% of the planet's freshwater ice. FALSE</i> <i>The Antarctic Ice Sheet is the single biggest mass of ice in the world and can sometimes be up to four miles thick. The continent as a whole contains about 90% of the planet's freshwater ice and around 70% of the total fresh water on earth!</i> <i>It holds 90% of all the ice on the planet. This is extremely important to climate change given that if it all melted, the oceans would rise by huge amount- 60 to 65 meters. This means that the sea would reach to the top of the bell tower of the church above Tartini Square in Piran.</i></p> <p><i>Antarctica is roughly the size of the USA. FALSE</i></p> <p>Then we play the game called »Animal Cards«.</p> <p>Each pair is given two cards - each student in the pair gets one. The first student has to look at the card with information about the given animal - they have one minute to memorize all the information. To give visual time information to the students, we start the timer on the PowerPoint presentation. When the time is up, the second student asks the first student questions from the second card. At the end, each pair briefly presents their animal and tells the others what they found most interesting about it.</p>
<p>Conclusion- 10 minutes</p>	<p>In this activity, students are first divided into smaller groups, depending on the size of the class. The teacher then introduces the activity and gives instructions to the students. They have 5 minutes to brainstorm about what a day in the life would look like, if they would work as a meteorology researcher on a research base in Antarctica. The teacher presents photographs on the PowerPoint slideshow, that guide and inspire the group brainstorming. The students are also allowed, to write their ideas on a piece of paper, that the teacher has prepared. After the 5 minutes, students present their ideas in groups, following the photographs for inspiration. The teacher regulates the group reports and simultaneously adds any suitable facts and information to the ideas.</p>

Additionally to the photographs on the slideshow, the teacher can use these guidelines for guidance in the discussion:

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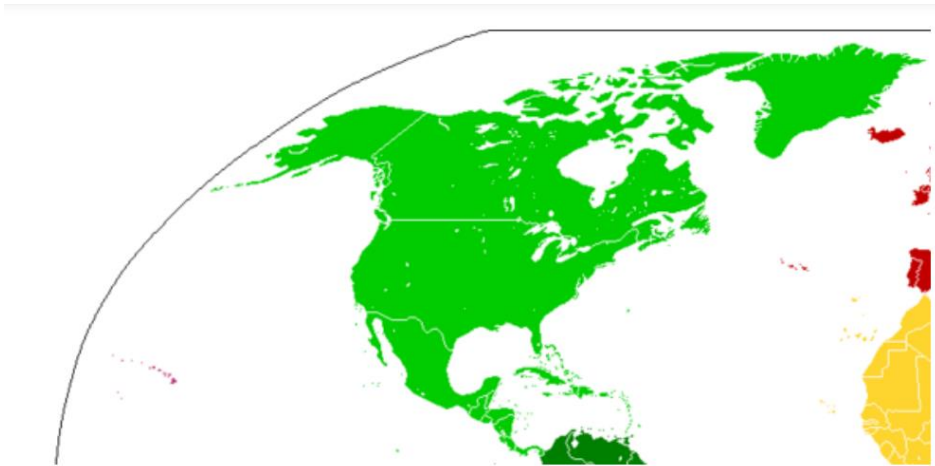
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Materials:

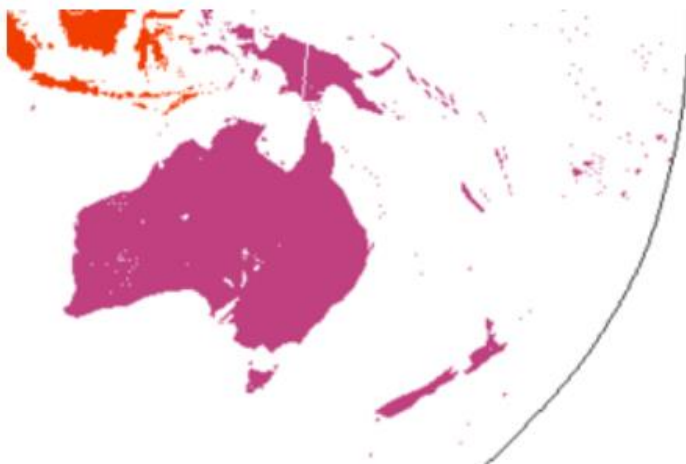
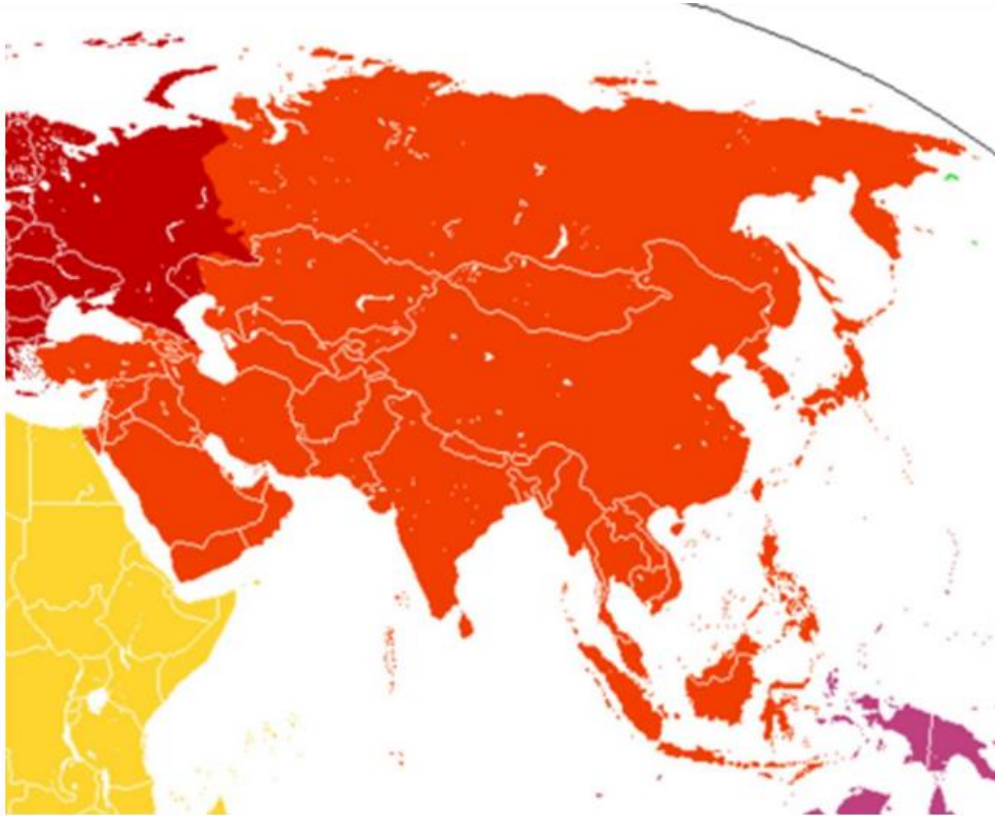
- 1.) Introductory photographs (example)



- 2.) Cut outs of continents – to make the whole map








3.) Pointers



4.) Animal Cards

Try to answer these questions about **the emperor penguin**:

7. What is the average life span of the emperor penguin?
8. How many chicks (baby penguins) are there in the picture?
9. What does the emperor penguin eat?
10. Can the emperor penguin fly?
11. True or false: The emperor penguin lives in Antarctica only in the winter.
12. How tall can the emperor penguin grow?




EMPEROR PENGUIN


The biggest penguin in the world.

They can't fly.


Adults have no natural enemies. Young birds can be attacked by a robin's gull.




The only land animal that lives in Antarctica in summer and winter.



Basic information

 Lifetime - 20 years.

It feeds on fish, shrimp and squid.

 Between 1.1m and 1.3m tall.

It can dive 300m deep.

THE POLAR BEAR



Thick fur and a thick layer of fat protect it from the cold.



To cool off, he often bathes in the sea.

It lives in and alongside the Arctic Ocean.

Basic information



Life span - 30 years.



It preys on fish, seabirds and seals.

Adult males weigh from 400 to 600 kg. Females weigh from 200 to 300 kg.





It is the third largest land animal in the world.

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12. Who weighs more; the male or the female polar bear?

The largest animal on earth.

BLUE WHALE





Blue whales are mostly solitary, so they live alone or in pairs.

They can eat up to 8 tons of food per day.

They stay in Antarctica for half a year to feed. They spend the second half of the year in tropical waters.


Basic information

 Lifespan - 80 years.

 They feed on small crustaceans.

They can weigh up to 160 tons (equal to 30 adult elephants).

They grow up to 30m in length.



Try to answer these questions about **the blue whale**:

7. What is the average life span of the blue whale?
8. What does the blue whale eat?
9. How much can an adult blue whale weigh?
10. Does the blue whale stay in Antarctica for the whole year?
11. How long can the blue whale grow?
12. Do the blue whales live in bigger groups?

Try to answer these questions about **the crabeater seal**:

7. What animal group are the crabeater seals classified as? Why?
8. Where do the crabeater seals spend the most of their lives?
9. What is the average life span of the crabeater seal?
10. What does the crabeater seal eat?
11. Why do crabeater seals like to find a sheet of ice?
12. How many crabeater seals are there in the entire world?

CRABEATER SEAL



They are classified as marine mammals, as they breathe with lungs, and feed on milk.

They spend most of their lives in the open sea.



They often find a sheet of ice that they carry across the sea. They rest on it or give birth to the young on it.

Basic information



Life expectancy - up to 56 years.



They feed on fish, squid, shellfish and crustaceans.

It is the most widespread type of seal. There are 30 million of them in the world.

5.) Photographs for guidance for the task of day in the life



SOURCES AND MATERIALS

- 15 Interesting Facts About Antarctica (n.d.). Hurtigruten Expeditions. <https://www.hurtigruten.com/en-us/expeditions/stories/fifteen-interesting-facts-about-antarctica/>
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