

# Unlock Christmas in Antarctica



Research scientists have lost their keys to the Christmas storage container! All evidence points to the penguins, but **which colony of penguins has the keys?**



It's now over to you to find which colony of penguins has the keys to unlock the storage container and get the research base ready for Christmas. You'll need to show off your skills to help members of the research base complete their individual tasks.

Each task will uncover a clue that will eliminate a colony of penguins who do not have the keys. Once you have completed all the tasks, you should know which colony has the keys.

**DETECTIVE'S NAME:**

\_\_\_\_\_  
(your name)

**WHICH COLONY HAS THE KEYS?**

\_\_\_\_\_  
(complete this at the end)



Ayesha is an ecologist, which means that she studies the relationships between plants, animals and the environment.

Animals and plants that live in Antarctica need to deal with some of the most extreme conditions on Earth. Answer the questions to help Ayesha with her work on these incredible living things.

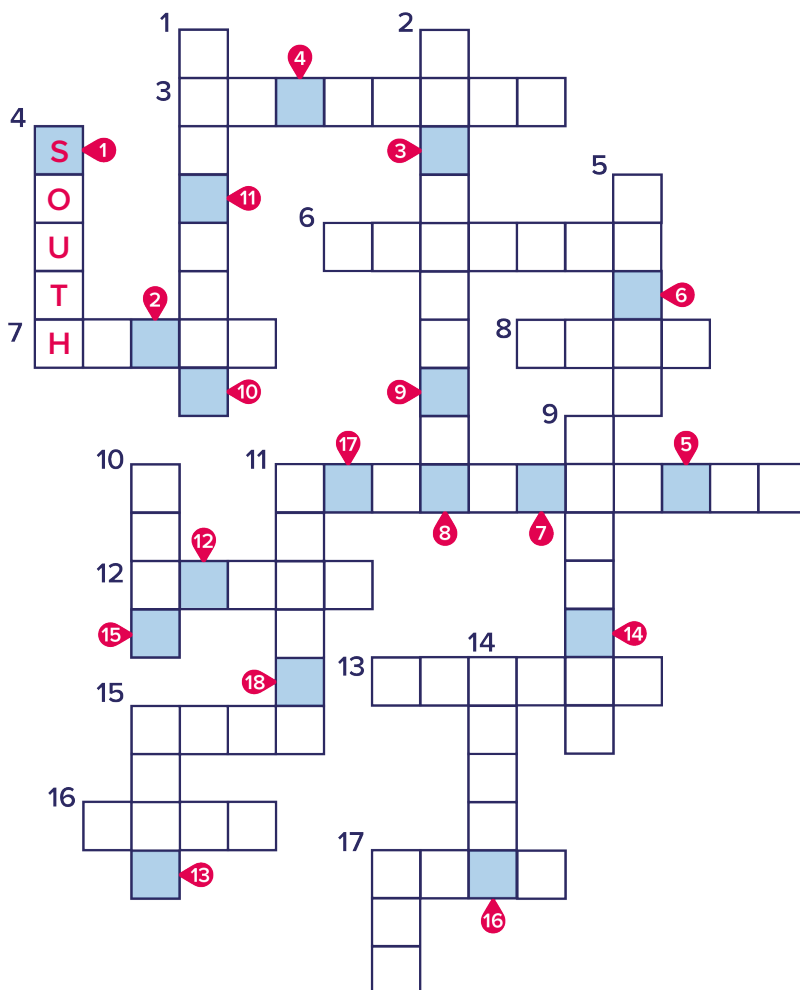
## Task 1

### ACROSS

- 3 The largest species of seal lives in Antarctica. It is named after the largest land mammal. (8)
- 6 Another word for the dense layer of fat under the skin that keeps penguins, whales and seals warm. (7)
- 7 An organ that can slow down to help penguins, seals and whales to dive for longer periods of time. (5)
- 8 A small, non-flowering plant that lives in damp places, such as around the Antarctic lakes and in the entrance to caves. (4)
- 11 Sea animals are \_\_\_\_\_ in order to move quickly and easily through water. (11)
- 12 Name of a baby penguin. (5)
- 13 Having toes joined together with skin to help with swimming. (6)
- 15 Penguins use this body part to help them change direction when swimming. (4)
- 16 The number of polar bears found in the Antarctic. (4)
- 17 Important seafood for many large Antarctic animals. (4)

### DOWN

- 1 Thick, overlapping layers of \_\_\_\_\_ makes penguins waterproof and windproof. (8)
- 2 The type of colouration that helps animals to blend in with their surroundings. (10)
- 4 The Earth's pole that is found in Antarctica. (5)
- 5 One of very few plants that can survive in Antarctica. Commonly found in gardens and parks. (5)
- 9 A wide, flat arm or leg that is used to help animals swim, such as seals and penguins. (7)
- 10 A black and white predator of seals and penguins also known as a killer whale. (4)
- 11 Many Antarctic animals live in large groups or communities. We call animals that do this... (6)
- 14 The skeleton is made up of \_\_\_\_\_. They are heavy in penguins to help them stay underwater when swimming. (5)
- 15 A large plant with a trunk and branches that cannot survive in Antarctica because of the cold. (4)
- 17 Unlike many birds, penguins cannot do this. (3)



**CLUE: Not the colony that has the...**

1	2	3	4
S			

5	6	7	8

9	10

11	12	13

14	15	16	17	18



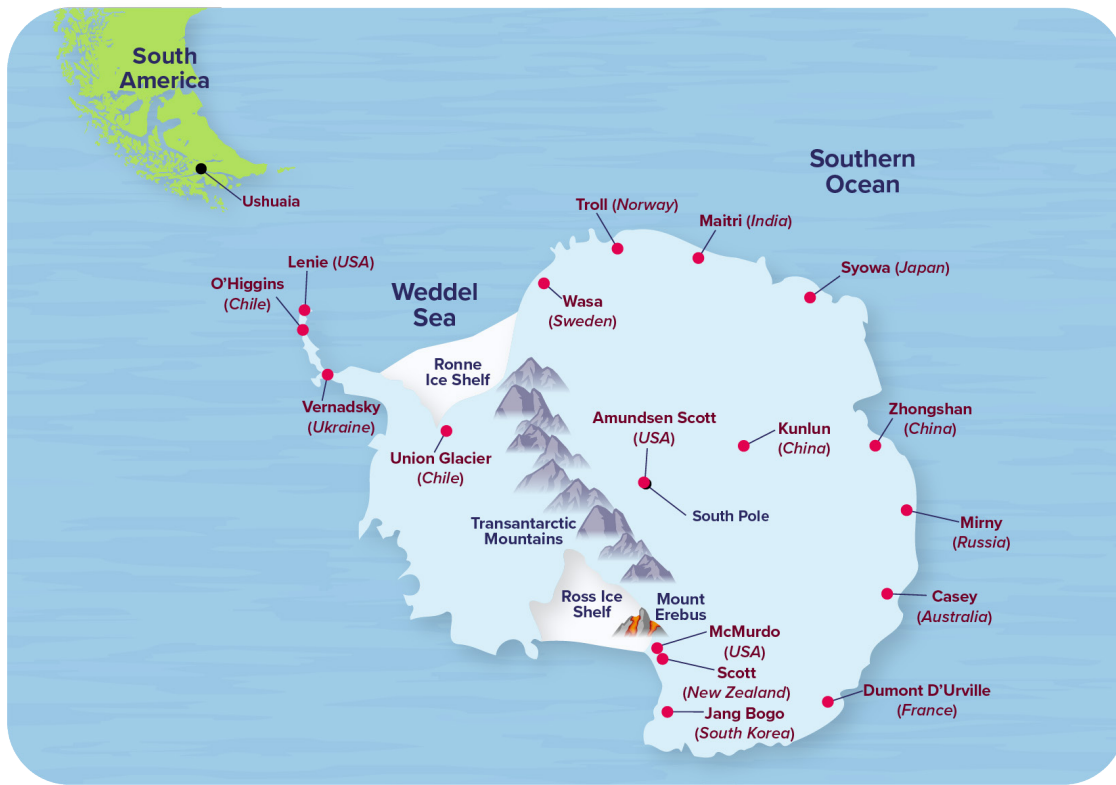
Devin the pilot organises all the supply deliveries to each of the different countries' research bases.

Follow his journey around the bases to find the clue that eliminates a penguin colony from the investigation.

## Task 2



- ① Devin flies to Antarctica from South America, departing from the town of U s h u a i a, in Argentina.  
5 2
- ② His first stop is the O'Higgins base, which belongs to \_\_\_\_\_.  
9
- ③ From here, Devin heads a short distance to the Ukrainian base, \_\_\_\_\_.  
3 4
- ④ His next stop is the scary-sounding base belonging to Norway, \_\_\_\_\_.  
12
- ⑤ Flying around the coast in a clockwise direction, Devin visits research bases belonging to India ( \_\_\_\_\_ ); Japan ( \_\_\_\_\_ );  
7 6  
\_\_\_\_\_ (Zhongshan); & \_\_\_\_\_, (Casey),  
18 8  
before reaching one belonging to France called \_\_\_\_\_,  
13



- ⑥ Devin now flies towards the Ross Ice Shelf, reaching the \_ \_ \_ \_ \_ base, which belongs to South Korea. 10 1 11
- ⑦ His next stop is two bases close together, the S \_ \_ \_ \_ and M \_ \_ \_ \_ \_ bases. 14
- ⑧ On his way, he passes over a smoking, lava-filled volcano called \_ \_ \_ \_ \_ . 15
- ⑨ Devin's final destination will be the South Pole itself, so he sets off to fly over the \_ \_ \_ \_ \_ , in order to reach the USA base named after two famous explorers: \_ \_ \_ \_ \_ and \_ \_ \_ \_ \_ . 16 17 20 21
- ⑩ Deliveries made, Devin flies back to South America, passing over the \_ \_ \_ \_ \_ Ice Shelf and waving to the penguins as he goes. 19

**CLUE: Not the...**

1	2	3	4	5	6	7	8	9	10	
	I			S						
11	12	13	14	15	16	17	18	19	20	21



Julia is a marine biologist conducting research in the coldest ocean water on the planet. Her team records the time at the start and the end of their dives to track how long they are underwater.

Calculate the number of minutes of each dive to eliminate a penguin colony.

### Task 3

Start Time	End Time	Number of Minutes	Clue Letter:
09:10	09:24	14	N
12:10	12:52		
16:32	16:56		
11:02	11:26		
14:24	14:51		
12:48	12:56		
15:50	16:34		
13:18	14:00		
10:00	11:07		
15:14	15:56		
10:55	11:09		
08:01	08:19		
16:32	16:56		
13:33	14:00		
11:28	12:13		
11:50	12:14		
08:57	09:29		
14:42	15:12		
14:29	14:53		
10:45	11:30		
15:56	17:03		
12:24	13:31		
09:53	10:01		
12:58	13:28		
13:02	13:26		

5	8	9	11	13	14	15	18	21	24	25	27	29
B	E	V	P	F	N	G	Y	D	T	R	H	W

30	32	33	41	42	44	45	46	47	51	52	57	67
S	I	X	M	O	C	A	Z	J	U	K	Q	L



Elias is the resident astronomer researching the universe beyond the Earth's atmosphere.

Elias has written a short passage about their work. You need to choose the correct spelling of words by circling the correct answers. Write the letters in order to create your clue.

#### Task 4

I think that Antarctica is, without **doubt/dout**, an **incredible/incredibile** place to study space. The clear, calm and dry winter **skies/skys** make it a stargazer's paradise with no **sighns/signs** of light **pollutian/pollution**. The white landscape makes **discovering/disscovering** meteorite rocks easier as they are clear to spot against the snow. You need to wrap up warm when exploring, otherwise your fingers and **thums/thumbs** will quickly go **numb/knum**. It can be very **dangerus/dangerous** if you explore alone.

The long winter **nights/knights** between March and October are submerged in **darkness/darknes**. You will not see the Sun for months at a time with very low **tempuratures/temperatures**. This is great for me as it provides extended periods of time for research. Living here can be **tugh/tough**, so the team on the base is very **important/importent**, but we have a great **international/international** team of **eight/ate** people. I **frequentley/frequently** play my **guitar/gitare** and sing songs with the group during our **sozial/social** time.

CLUE: Eliminates all...

B



Dominika is the base doctor. She is in charge of making sure everyone is healthy, physically and mentally.

These are the most common words she uses each week with her team. Find these words in the grid. The letters left over will provide you with your clue.

### Task 5

G	O	G	N	E	T	S	M	H	N
N	N	W	N	R	I	U	T	T	U
O	H	I	O	I	S	T	H	L	T
I	H	P	H	C	P	R	E	A	R
T	S	O	L	C	O	M	R	E	I
A	A	E	N	W	T	G	U	H	T
R	S	E	I	F	E	E	E	J	I
D	G	N	I	N	N	U	R	T	O
Y	G	E	V	I	T	C	A	T	N
H	E	X	E	R	C	I	S	E	S

~~Stretching~~  
Hydration  
Sport

Exercise  
Nutrition  
Muscles

Running  
Jumping  
Throwing

Active  
Health

**CLUE:** You can eliminate the...

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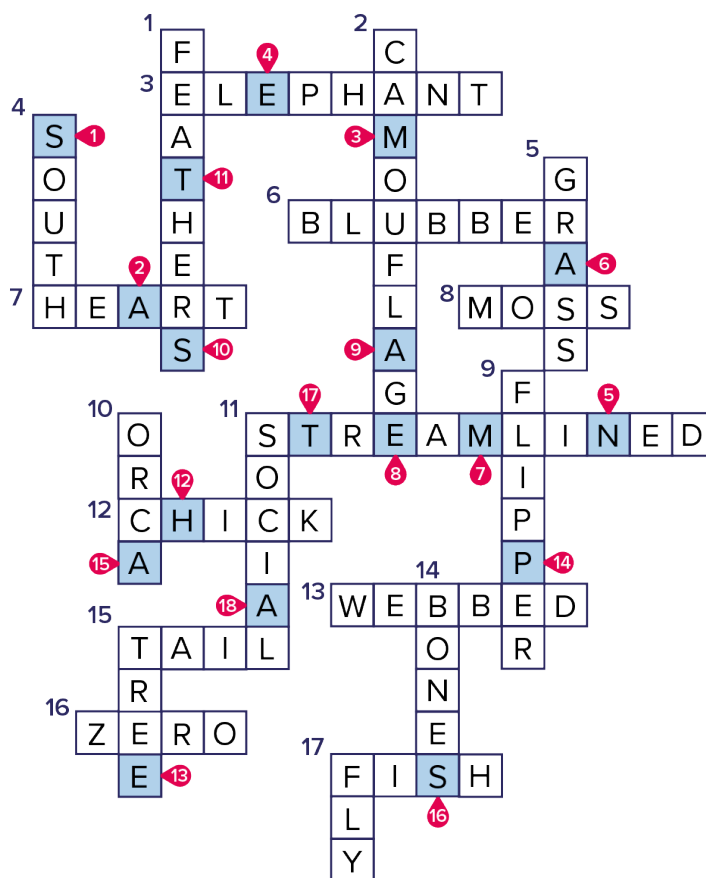


# Shhh... Here are the answers!

## Task 1

### CLUE

Not the colony that has the...  
'SAME NAME AS THE PASTA'  
(Eliminates Macaroni)



## Task 2

1) Devin flies to Antarctica from South America, departing from the town of **USHUAIA**, in Argentina.

2) His first stop is the O'Higgins base, which belongs to **CHILE**.

3) From here, Devin heads a short distance to the Ukrainian base, **VERNADSKY**.

4) His next stop is the scary-sounding base belonging to Norway, **TROLL**.

5) Flying around the coast in a clockwise direction, Devin visits research bases belonging to India (**MAITRI**); Japan (**SYOWA**); **CHINA** (Zhongshan); and **AUSTRALIA**, (Casey), before reaching one belonging to France called **DUMONT D'URVILLE**.

6) Devin now flies towards the Ross Ice Shelf, reaching the **JANG BOGO** base, which belongs to South Korea.

7) His next stop is two bases close together, the **SCOTT** and **MCMURDO** bases.

8) On his way, he passes over a smoking, lava-filled volcano called **MOUNT EREBUS**.

9) Devin's final destination will be the South Pole itself, so he sets off to fly over the **TRANSANTARCTIC MOUNTAINS**, in order to reach the USA base named after two famous explorers: **AMUNDSEN** and **SCOTT**.

10) Deliveries made, Devin flies back to South America, passing over the **RONNE** Ice Shelf and waving to the penguins as he goes.

### CLUE

Not the...  
'BIRDS WITH A GOLDEN CHEST'  
(Eliminates King)



### Task 3

**CLUE**  
**'NOT THE COLONY THAT  
 IS TALLEST'**  
 (Eliminates Emperor)

Start time	End time	No of minutes	Clue letter:
09:10	09:24	14	N
12:10	12:52	42	O
16:32	16:56	24	T
11:02	11:26	24	T
14:24	14:51	27	H
12:48	12:56	8	E
15:50	16:34	44	C
13:18	14:00	42	O
10:00	11:07	67	L
15:14	15:56	42	O
10:55	11:09	14	N
08:01	08:19	18	Y
16:32	16:56	24	T
13:33	14:00	27	H
11:28	12:13	45	A
11:50	12:14	24	T
08:57	09:29	32	I
14:42	15:12	30	S
14:29	14:53	24	T
10:45	11:30	45	A
15:56	17:03	67	L
12:24	13:31	67	L
09:53	10:01	8	E
12:58	13:28	30	S
13:02	13:26	24	T

### Task 4

I think that Antarctica is, without **doubt/dout**, an **incredible/incredible** place to study space. The clear, calm and dry winter **skies/skys** make it a stargazer's paradise with no **signs/signs** of light **pollution/pollution**. The white landscape makes **discovering/disscovering** meteorite rocks easier as they are clear to spot against the snow. You need to wrap up warm when exploring, otherwise your fingers and **thums/thumbs** will quickly go **numb/knum**. It can be very **dangerus/dangerous** if you explore alone.

The long winter **nights/knights** between March and October are submerged in **darkness/darknes**. You will not see the Sun for months at a time with very low

temperatures/temperatures This is great for me as it provides extended periods of time for research. Living here can be tough/tough so the team on the base is very important/important but we have a great international/international team of eight/ate people. I frequently/frequently play my guitar/gitare and sing songs with the group during our sotial/social time.

#### CLUE

Eliminates All...  
**BIRDS WEARING HELMETS**  
(Eliminates Chinstrap)

### Task 5

#### CLUE

You Can Eliminate The...  
**ONES WITH THE  
ORANGE FEET**  
(Eliminates Chinstrap)

G	O	G	N	E	T	S	M	H	N
N	N	W	N	R	I	U	T	T	U
O	H	I	O	I	S	T	H	L	T
I	H	P	H	C	P	R	E	A	R
T	S	O	L	C	O	M	R	E	I
A	A	E	N	W	T	G	U	H	T
R	S	E	I	F	E	E	E	J	I
D	G	N	I	N	N	U	R	T	O
Y	G	E	V	I	T	C	A	T	N
H	E	X	E	R	C	I	S	E	S

#### WHICH COLONY HAS THE KEYS?

**ADELIE**

