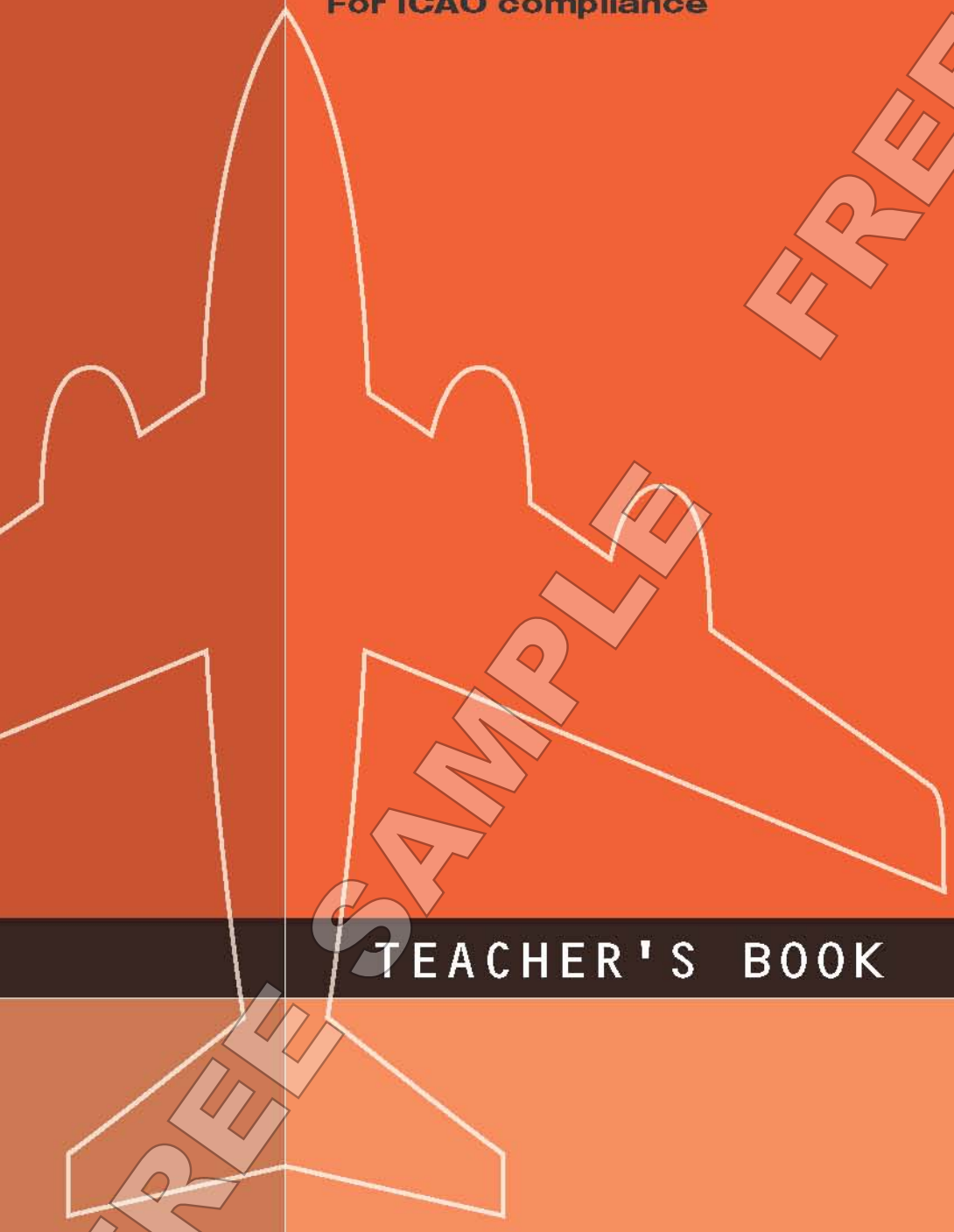
Aviation

ENGLISH

For ICAO compliance



TEACHER'S BOOK

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MACMILLAN

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LOST

Section one – Across the Pacific

This section introduces the true story of a pilot, Jay Prochnow, who is lost while crossing the Pacific Ocean on a solo flight in a single-engine plane. The section teaches the key vocabulary of air navigation and the language function of explaining abbreviations. It also sets the scene for Section 2 in which Jay Prochnow is rescued through the efforts of a commercial airline pilot who picks up his distress call.

1 The picture and the question should arouse students' curiosity. Flying a light aircraft like this with one engine over long stretches of water is not recommended. You might receive some strong reactions, particularly if you are teaching airline pilots (or trainee airline pilots) whose training emphasizes the importance of avoiding any kind of risk. Air traffic controllers (or trainees) are likely to react in a similar way. It is likely that the students will be intrigued by the situation and motivated to talk about the risks involved.

(Suggested answers)

The aircraft can't carry much fuel, which limits how far it can fly at once.

The aircraft doesn't have sophisticated navigational aids.

There are few landmarks for navigation.

The aircraft only has one engine.

There are few places to land in an emergency.

2 Note that the word *incident* has a high frequency in aviation English. It refers to any situation in which one or more things went wrong but which did not actually result in an accident. Safety and prevention of accidents relies primarily on the systematic study of incidents and the drawing of appropriate conclusions and recommendations.

a endurance
b fix
c calculate
d incident
e track
f task

3 This text should be clear and the aviation vocabulary is straightforward or has been defined in Activity 2. *HF signals* stands for high frequency signals. You might need to respond to vocabulary questions of a general nature.

(from top to bottom)
Oakland
Hawaii
Pago Pago
Onu-I-Lau
Norfolk Island

4 1 Cessna 188
2 22 hours
3 15 hours
4 110 knots
5 0300
6 1,500 nm

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5 Students read the text a second time in order to make sure they have understood. They might wish to discuss the situation or you could prompt a discussion with some supplementary questions, e.g. *What will happen if he runs out of daylight?* (Navigation becomes impossible and he probably has to ditch in the ocean with little chance of survival.) *How serious is the problem?* (Extremely serious as he's running out of daylight.)

1 An aircraft sales company in Oakland
2 Charts, a compass and an ADF
3 To give maximum daylight hours.
4 There were no navigational aids.
5 When he couldn't see Norfolk Island.

6 If you wish to vary the activity, ask students to close their books and work in pairs or small groups to brainstorm the advice they would give to pilots like Prochnow.

(Suggested answers)

Carry a GPS device.

Be patient and wait for the best meteorological conditions (completely clear skies, a following wind).

Contact other pilots who have flown a similar route for advice.

Bring some strong coffee or something else to help keep you awake at all time.

Functional English – Explaining abbreviations

1 Students could complete the activity in groups A and B to ensure they have the correct answers before beginning the information exchange activity.

NDB = non-directional beacon, ADF = automatic direction finder, VFR = visual flight rules

2 Encourage students to help their partner with hints (e.g. giving the first word when there's more than one). To feed back on this activity ask students to explain the abbreviations that you don't know (or are not sure of). This could be an authentic and useful exchange of information.

DTG	distance to go
FAF	final approach fix
FDR	flight data recorder
OAT	outside air temperature
RVR	runway visual range
TAS	true air speed
TBS	to be specified
TOGA	take off, go around
ZFW	zero fuel weight
ILS	instrument landing system

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Section two – Finding flight N45AC

This section deals with the rescue of Jay Prochnow. Students listen to the initial contact he made with Auckland air traffic control and the subsequent assistance he received from Captain Vette. The listening activity outlines the considerable aid he received and forms an interesting and challenging listening comprehension activity. Later in the section students practise giving and receiving coordinates as well as the pronunciation of regular past tense endings.

1 This is a warm-up activity prior to listening. The aim is for the students to discuss the possible order of events and review some of the key parts of the pilot-controller dialogue.

2 07, 08, 09 *Mayday. Mayday. Mayday.* is the standard phrase for declaring an emergency. Note that pilots may sometimes contact a controller with a problem but not actually need to or wish to declare an emergency (when in doubt, a controller will ask *Are you declaring an emergency?*). Once an emergency has been declared, all possible assistance will be provided to a pilot, whether from air traffic control services or other pilots who pick up the emergency call.

1 d 2 e 3 a 4 b 5 c

07 Listening script

P = Prochnow, C = controller,
V = Vette

P MAYDAY. MAYDAY. MAYDAY. Auckland Control. N45AC. I'm lost. I'm a Cessna 188 AgWagon.
C N45AC. Auckland centre roger mayday.
(II)
V TE103 contacting N45AC.
P N45AC. Copy.
V N45AC. We are a DC-10 en route from Fiji to New Zealand. We received news of your situation. We are offering assistance. Can you tell me what happened?
P TE103. Thanks. Departed Pago Pago at three this morning with around 22 hours endurance. I wanted to have enough light to see my fixes. But the ADF stopped working correctly and now unable to calculate my position. N45AC.
V N45AC. We are going to try to establish VHF communication with you.

08 Listening script

V Turn towards the sun and report your heading.
P Wilco. (II) My heading is 274°.
V N45AC. We are facing the sun. Our heading is 270. The difference is 4°, so you are south of our position. Now hold out your hand. How many fingers do you have between the horizon and the sun?
P About two and a half fingers.
V N45AC. We have four fingers, so you are south-west of our position. Fly heading 315.
P Heading 315.
V N45AC. Maintain your position, so we can establish your position using the radio signal. We'll maintain our heading until we lose contact. Then we will turn left to re-establish contact, and then try to box you in this way. We'll contact you again very soon. (II) N45AC. It's getting dark. What time is your sunset?
P The sun is setting now, and it 0752 zulu.

09 Listening script

V N45AC. Sunset on Norfolk Island is 0730 zulu. That means you are 5.6° east and 30° south of Norfolk Island. Maintain your heading.
P TE103. I can see a light. I think it's an oil rig.
V N45AC. Your coordinates are 31° south 170° 21' east. You are 150 miles from Norfolk Island.

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3 07, 08, 09 Even allowing for the fact that pilots will always help each other out, the assistance provided by Captain Vette was quite remarkable. He agreed straightaway to incur a significant diversion of his passenger flight in order to search for Prochnow. He also had little information to go on, making the search very difficult. The navigational techniques he used to determine Prochnow's approximate position were highly innovative and effective. Note the word *transponder* in Question 4. This is the onboard device which allows aircraft to be identified on a controller's radar. Even if Jay Prochnow's aircraft was equipped with a transponder it would not have been any use in the remote area he was flying in as radar coverage was not provided. Had there been radar coverage in the area, an air traffic controller would have been able to give him his precise position and help him to navigate safely to his destination.

1 b 2 b 3 b 4 b 5 a

Vocabulary – Co-ordinates

1 08, 09 Note that according to standard ICAO phraseology, the following numbers have special pronunciations in aviation English: *3 tree 5 fife 9 niner*. Numbers are of critical importance and the aim is that there is no ambiguity in this area. *Five* and *nine* could be confused. The *th* sound is difficult for many nationalities to pronounce and hence *tree* instead of *three*. That said, many pilots and controllers (native English speaking or foreign) do not incorporate these variations when they communicate on the frequency.

1 274°
2 5.6° east
3 30° south
4 31° south 170° 21' east
5 150 miles

2 10 Students repeat the numbers.

10 Listening script

north
south
east
west
south-east
north-west
south-west
north-east
274°
56° east
30° south
170° 21' east
14° 32' 40. 25" north

3 Exact positions on the globe are stated longitudinally and laterally with the Earth's surface divided into 360° around each axis. Each degree is divided into 60 minutes and for further precision a number of seconds can also be stated.

In this pair-work information exchange activity, it is important that students communicate numerical data accurately. Monitor students' rhythm and offer them advice on improving it as necessary.

Pronunciation – Regular past tense endings

1 11 Correct pronunciation of the *ed* past tense ending is difficult for many nationalities and it is important in preventing a possibly serious miscomprehension. Make sure all students can hear and reproduce the three basic sounds before moving to the next activity.

11 Listening script

We received news of your situation.
The ADF stopped working correctly.
I wanted to have enough light to see my fixes.

2 12 You could do this activity with the whole class. Encourage students to say each verb. You could model one or two verbs if they can't agree, but students should be able to complete the table without help. Then play the recording to check.

1 /d/	followed	arrived	tried
2 /t/	established	approached	tasked
3 /ɪd/	contacted	departed	calculated

12 Listening script

1 /d/	followed	arrived	tried
2 /t/	established	approached	tasked
3 /ɪd/	contacted	departed	calculated

3 After successful choral repetition, you might elicit some other regular verbs and ask students which group they belong to.

4 In this activity students practise reproducing the correct past tense endings in context.

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Section three – Lost

This section deals with a situation where a pilot who is qualified to fly only VFR ends up lost in IMC (Instrument Meteorological Conditions). This is a frequent and dangerous occurrence, especially with inexperienced pilots or student pilots flying solo. Often it is the air traffic controller who rescues the pilot by guiding him / her to safety. As well as providing further relevant listening comprehension practice for the students, the section focuses on the vocabulary needed to describe landmarks and also on the functional language of confirming and disconfirming.

1 Before beginning this activity, review vocabulary for geographical features. Have students keep their books closed and ask them the following question: *What geographical features can help a pilot navigate visually?* Write their suggestions on the board, supplying the vocabulary yourself when necessary.

Then students work in pairs or small groups to complete Activity 1. Be ready to explain any words they are not sure of.

1 built-up area
2 lake
3 high ground
4 mast
5 reservoir
6 valley
7 woods
8 fields
9 highway
10 power lines
11 coast

2 13 To provide students with vocabulary revision before completing the table, ask them to close their books and elicit answers to the following question:

What is the most important information a disorientated pilot needs to give ATC? (Altitude – the pilot could be dangerously low depending on the terrain – and endurance should be high on their lists. Note that controllers are required to ask how many passengers are on board.)

1 15
2 south-east
3 Beech Baron
4 3,000
5 110
6 780
7 8
8 1, 30 minutes

3 14 For less confident classes, play the recording once and ask the students to just listen. Then play the recording again pausing at regular intervals to give them time to answer.

trees, fields, road, valley, river, reservoir, communications mast, high ground

13 Listening script

P = pilot, C = controller

P MAYDAY. MAYDAY. MAYDAY. TJB.
C TJB. Pass your message.
P MAYDAY. MAYDAY. MAYDAY. We're lost.
C TJB. Say last known position.
P Last known position was 15 miles south-east of CELRA VOR. TJB.
C TJB. Roger, last known position 15 miles south-east of CELRA VOR. Remain straight and level.
P I'm straight and level right now. We're in total IMC. I can't see the ground.
C TJB. Squawk 7700 on your transponder sir.
P Squawking 7700. TJB.
C TJB. I don't have you on my screen. Can you confirm your aircraft type, altitude and speed?
P We're in a Beech Baron. Altitude 3,000. Speed 110. TJB.
C TJB. Please state fuel on board and persons on board.
P I have 780 lb of fuel, and eight persons on board. Endurance is approximately one hour and 30 minutes … I can see the ground now. I can see trees, and I can make out … high ground on each side of the aircraft …

14 Listening script

C TJB. Can you fly into VFR?
P Affirm … I can see high ground to the north. I'm flying up a valley, with woods to the north, and fields below me. There is a road below me.
C TJB. Confirm that you can see a road.
P Affirm. I can see a road.
C TJB. What side of the valley is the road on?
P The highway is to my right, on the south side of the valley.
C TJB. Can you make out a river?
P Affirm. There is a river.
C TJB. Is the river on the north side of the road?
P Affirm. The river is … no … the road is crossing the river. The river is now on the south side of the road.
C TJB. Can you clarify that the road crossed the river and is now on the south side of the road?
P Negative. The road is now on the north side of the river. The road is now turning south-east. There's a reservoir below me now.
C TJB. Can you see a communications mast at 12 o'clock, at about 4 miles?
P Affirm. There is a communications mast at 12 o'clock.
C TJB. Turn hard left and make a 180° turn, heading 265. Expedite.
P Making a 180° left turn, heading 265. TJB. (II) I'm coming out of the valley and I can see a built-up area and a lake at one o'clock. TJB.
C TJB. There is an airport with a tower 5 miles north-west. Say intentions.
P I'd like to land. Can you give me vectors?

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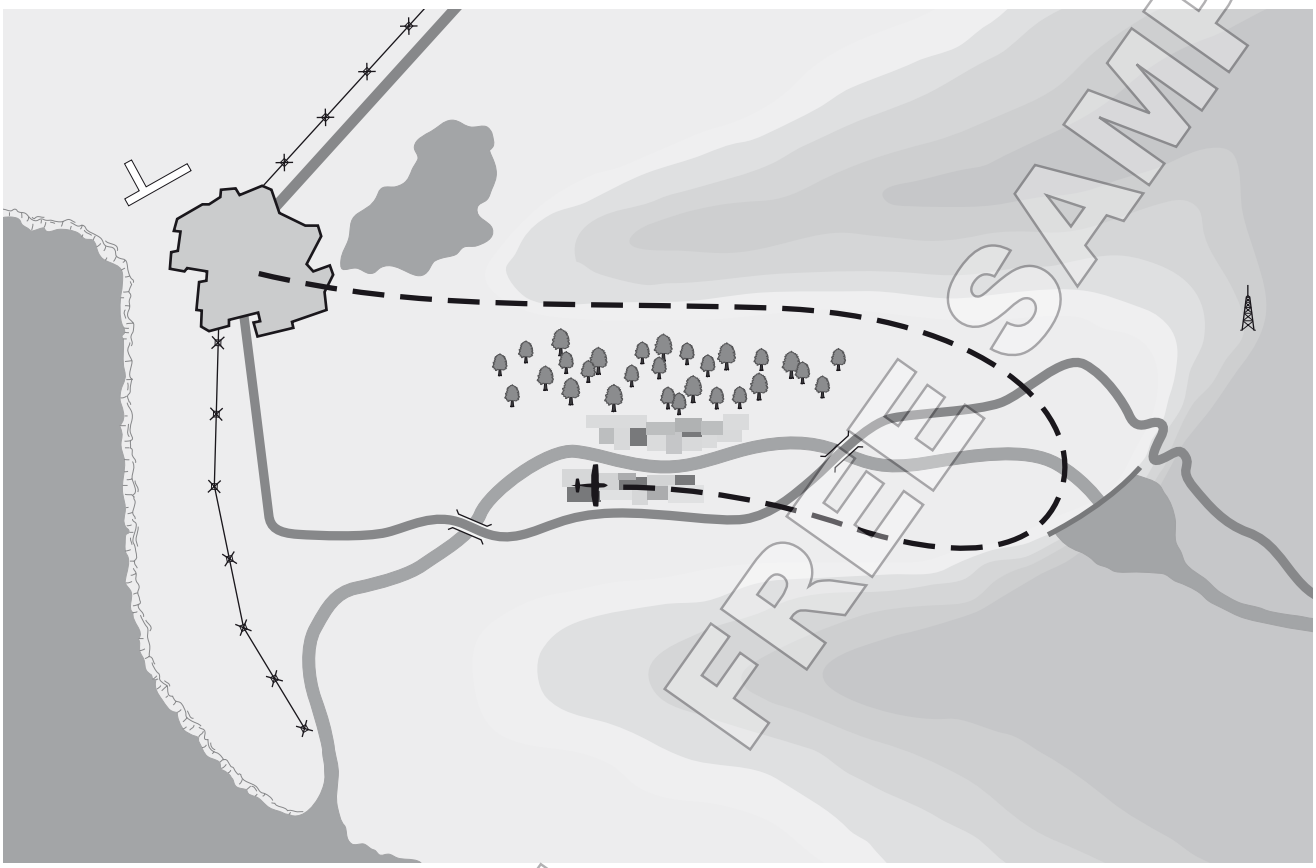
4 14 Get students to listen again and draw the pilot's path on the map. In large classes, students could work in groups, then exchange their maps with other groups to check their answers.



Functional English – Confirming and disconfirming

1 14 You could review the sentences with the students before listening to the dialogue and get them to predict the answers. After completing the activity, you could review question formation with students.

1 Can 2 Confirm 3 Can 4 Is 5 Can you clarify 6 Can you see

2 14

1 ✔ 2 ✔ 3 ✔ 4 then, ✘ 5 ✘ 6 ✔

3 14 As well as an effort on the part of the controller to speak more slowly and clearly (as in this example), rephrasing or a reformulation can also help when the pilot is having difficulty understanding (or vice versa). Most controllers and pilots who are speaking English as a foreign language do this automatically. Controllers and pilots who are native English speakers, on the other hand, are sometimes criticized for their lack of sensitivity when checking, confirming and clarifying instructions. You could discuss with your students some of their experiences and difficulties in this area.

(2) is slower and clearer. Requests to confirm information must be spoken slowly and clearly.

Speaking

This is a free practice activity. Explain to students that they will reuse the language they have studied in this section and that they should confirm, check and clarify the information given by Students A and B. When they have done the activity once, you might like to change pairs and change roles and do it again. You can add an extra challenge this time by telling the pilots to deliberately read back wrongly one of the controller's instructions.

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Section four – Language development

Functional English – Simple past

1
1 made
2 happened
3 reported
4 departed
5 flew
6 did not reach
7 landed
8 believed
9 was
10 were not

2
1 Why did you make
2 When did you notice
3 Did you decide
4 Why did you land
5 How did the fire start
6 How many passengers did you have

3
1 took place / happened
2 avoided
3 detected
4 steered
5 was
6 was
7 crossed
8 took place / happened
9 issued
10 blamed
11 didn't tell

Confirming and disconfirming

1 Say last
2 that correct
3 Affirmative
4 what you
5 can see
6 Confirm that
7 Negative
8 give further

Vocabulary

1
1 d
2 b
3 g
4 i
5 h
6 a
7 e
8 c
9 f

2
1 Maintain
2 establish
3 maintain
4 lose
5 turn
6 re-establish
7 box
8 contact
9 getting

3
type of land
high terrain
marshland
desert
plain
urban area
farmland
features
bridge
footpath
harbour
cemetery
lighthouse
ridge

PHOTOCOPIABLE ACTIVITY

This is a role-play activity where the students work in pairs. First Student A is a TV journalist interviewing Jay Prochnow and Student B is Jay Prochnow. Then Student A is Captain Vette and Student B is a TV journalist.

Before students start, review what happened to Jay Prochnow and how Captain Vette rescued him (Sections 1 and 2). Students will then need ten minutes preparation time to do the activity and to think of two additional questions. With more confident classes, you can explain that they are not obliged to follow the script.

If you have access to recording equipment, you could video the students' interviews. You should seek your students agreement if you plan to do this.

Key

Questions for Student A

1 Why were you flying for such a long distance across the ocean?
2 What special preparations did you make for this flight?
3 When did you realize you were lost?

Questions for Student B

1 Why did you ask Jay Prochnow to fly towards the sun?
2 How did you establish his exact position?
3 What advice did you give him?

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Role card for Student A

First you will play the role of a journalist. You are going to conduct an interview with Jay Prochnow. Look at the words below and put them in the correct order to make questions. Then write two more questions. After you finish the interview you will play the role of Captain Vette and answer your partner's questions. When you and your partner are both ready, conduct the two interviews. You may choose to ask additional questions depending on the responses you receive.

1 a / across / distance / flying / for / long / ocean / such / the / were / why / you

_____?

2 did / flight / for / make / preparations / special / this / what / you

_____?

3 did / lost / you / realize / were / when / you

_____?

Additional questions:

_____?

_____?

Role card for Student B

First you will play the role of Jay Prochnow and answer your partner's questions. After you finish the interview you are going to play the role of a journalist. You are going to conduct an interview with Captain Vette. Look at the words below and put them in the correct order to make questions. Then try to write two more questions of your own. When you and your partner are both ready, conduct the two interviews. You may choose to ask some additional questions depending on the responses you receive.

1 ask / did / Jay Prochnow / to / fly / sun / the / towards / why / you

_____?

2 did / establish / exact / his / how / position / you

_____?

3 advice / did / give / him / what / you

_____?

Additional questions:

_____?

_____?

FREE SAMPLE

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