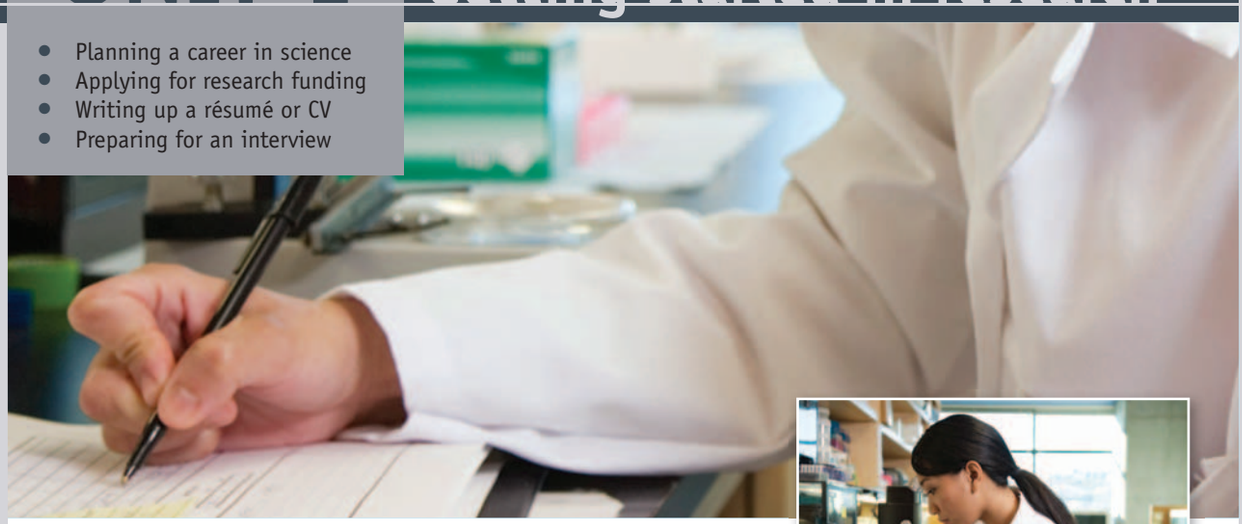
UNIT 1 Getting started in research

- Planning a career in science
- Applying for research funding
- Writing up a résumé or CV
- Preparing for an interview



Planning a career in science

1 a **In pairs, discuss the following questions.**

1 Why did you choose a career in science?
2 What field of science are you currently working or studying in?
3 What would you like to do next in your work or studies?

b **Many scientists continue their education in other countries. The table below summarises higher education for science in the US. Make a similar table for your country and then answer the following questions.**

1 Is science education in the US similar to science education in your country?
2 If you decided to study in the US, which qualification would be best for you?

Higher education for science in the US

Qualification (lowest to highest)	Category	Duration (full-time)	Place of study
Associate of Science degree (AS)	undergraduate	2 years	community college or junior college
Bachelor of Science degree (BS)	undergraduate	2 or 4 years*	college or university
Master of Science degree (MS)	graduate (postgraduate)	2 years	university or graduate school
Doctoral degree (PhD)	graduate (postgraduate)	3 to 8 years	university or graduate school

* Students who have already completed an Associate (AS) degree can become a Bachelor of Science if they study for two more years.

2 a ▶ 1.1 **Eriko is from Japan and will soon complete a PhD in biotechnology in London. She is discussing the next stage in her career with her supervisor, Susana. Listen to part of their conversation and tick the options which interest her and put a cross next to the options which do not.**

- ☐ teaching (undergraduate) students
- ☐ doing post-doctoral research
- ☐ supervising a research team
- ☐ finding a permanent position at a university
- ☐ discussing theory
- ☐ doing practical fieldwork
- ☐ staying in London
- ☐ finding a well-paid job

b ▶ 1.2 **You will hear eight sentences from Eriko and Susana's conversation. Listen and complete the first row of the table by writing the number of each sentence (1–8) in the correct column.**

Talking about ...			
likes or dislikes	past experiences	future (more certain)	future (possible)

c Look at the underlined phrases in Audioscript 1.2 on page 91. Put the underlined phrases into the correct part of the second row of the table in Exercise 2b.

3 a Think about your career in science and make notes on:

- what you enjoy most about working in your scientific field
- what you would like to do (and not like to do) next in your career
- which of your past and present experiences are most relevant to your future in science

b In pairs, take turns to interview your partner about his/her career path in science. Use the phrases from Exercise 2c to help you.

Applying for research funding

4 a **Read the following extract from a website and then, in pairs, answer the questions below.**

1 Can an organisation apply for this scholarship?
2 Would you be interested in applying for SARF? Why / why not?
3 What information might you need to include on your application form?
4 What are the advantages of attracting scientists 'with future potential for leadership in their field' to a country?

About

The Sheridan Australian Research Fellowship (SARF) aims to develop science in Australia by attracting outstanding scientists in their field to continue their research in an Australian university or research institution. SARF fellowships are awarded to individual scientists with future potential for leadership in their field. Successful applicants receive a 5-year grant covering salary, travel and relocation costs.

b **Eriko has decided to apply to SARF and has downloaded an application form. Look at the list of sections on the form (1–10) and match each one to Eriko's notes on the information she needs to provide (a–j).**

Sheridan Australian Research Fellowship SARF

APPLICATION FORM

1 APPLICANT
2 CURRENT APPOINTMENT AND ADDRESS
3 LOCATION OF PROPOSED STUDY
4 SPONSOR'S RECOMMENDATION
5 DEPARTMENTAL SUPPORT
6 PROJECT TITLE
7 PROJECT SUMMARY
8 DETAILS OF PROPOSED RESEARCH
9 BUDGET
10 NOMINATED REFEREE WITH PERSONAL KNOWLEDGE OF APPLICANT

a an explanation of how I'll do the research and why it is important
b a short description of what I'll research
c a statement from a senior researcher explaining why I'm a suitable applicant
d how much I plan to spend on my research
e the job I do now
f the name of someone to support my application
g what I'll call my research
h permission from my head of faculty to use his/her resources
i where I plan to study
j my personal info

5 a **Section 7 of the form asks applicants to write a project summary of their research proposal. Think about a research project in your area. In pairs, take turns to summarise the project following the instructions (1–6) below.**

1 State the aims of your research
2 Define what the problem is
3 Explain why your topic is worth researching
4 Say what the expected outcomes of the research are
5 Outline the procedures you will follow
6 Outline how you will limit your investigation

b **Read Eriko's completed project summary on page 9. Then say what you think the commercial applications of Eriko's research might be.**

7 PROJECT SUMMARY

Provide a brief summary of aims, significance and expected outcomes of the research plan

A 3-D odour-compass for odour-detecting robots

Odour-sensing robots offer many benefits over the current use of animals in similar roles, including safety, efficiency and durability. **[A]** However, the robots which have been developed to date are limited by the fact that they can only accurately detect and navigate towards odour plumes if they are within direct 'sight' of the chemical source. Clearly, in real world situations, obstacles may well impede the robot's detection ability, and at present, odour-sensing robots are therefore only of limited use. **[B]** The proposed research will concentrate on developing a robot which is able to gather readings in three dimensions and therefore overcome the limitations of current models in odour-detection. **[C]** This technology will make robots a more effective substitute for animals.

[D] This research aims to develop existing robotic technology to create a three-dimensional (3-D) odour compass to be used as a navigation tool in searching for an odour source. **[E]** This will then be tested experimentally in simulated environments where wind direction is not stable or where obstacles interfere with odour distribution. A second stage in the research will be to develop the robot's environmental sensors, thus allowing it to safely negotiate the terrain to reach the source of the odour. **[F]** This should produce a robot which is able to both detect and move to the source of an odour, even on difficult terrain.

c **Match each highlighted section in the summary (A–F) to the correct function (1–6) from the list in Exercise 5a.**

d **Look at the highlighted sections A–F again. Underline the words that you could use in your own project summary. Makes notes like the following example.**

However, to date and limited to define the problem (A).

6 **a** **Complete the project summary by another researcher below using the correct word or phrase from the box.**

aims to however the initial phase the proposed research the study will indicate

Consumer interest in wines produced in organic vineyards has increased significantly in the last few years. (1) _____ , to date it is unclear whether these production methods actually improve soil or grape quality. (2) _____ will be the first phase of a long-term study on a New Zealand vineyard. These results (3) _____ whether methods of viticulture improve grape quality.

The research (4) _____ investigate the effects of organic agriculture on soil and grape quality. (5) _____ will consist of two treatments, organic and conventional (the control), each replicated four times in a randomised, complete block design. All organic practices will follow the standards set out by the Food Standards Australia New Zealand (FSANZ).

(6) _____ will assess soil quality using physical, chemical and biological indicators over six years. The next phase will then assess the physiology of the vines.

b **Write a short project summary of about 150 words for the research you discussed in Exercise 5a above. Use the phrases you noted in Exercises 5d and 6a.**

Writing up a résumé or CV

7 a **In pairs, discuss the following questions.**

1 Have you ever applied for a job in science? If not, what kind of job would you like to apply for in the future?
2 Which of the following documents are job applicants usually asked for in your country?
- application form
- biodata
- cover letter (covering letter)
- résumé or CV (curriculum vitae)

3 Have you ever written one of these documents in English?
4 Do you think that the information you include and the way you organise a résumé or CV in English will be the same as a résumé or CV in your own language?

b **Section 1 of the SARF application form asks applicants to include a copy of their CV. In pairs, look at the list of possible headings for a CV (a–l) and then answer the following questions.**

1 Would you use all the headings (**a–l**) on your CV? Why / why not?
2 How would you organise the information in your CV? Put the list of headings (**a–l**) in the best order.
3 What kind of information would you include under each heading? Make suggestions for each heading.

a	☐ computer skills	g	☐ publications
b	☐ dissertations	h	☐ research experience
c	☐ education	i	☐ study abroad
d	☐ grants and awards	j	☐ teaching experience
e	☐ personal information	k	☐ technical skills
f	☐ presentations	l	☐ travel

8 a ▶ 1.3 **Eriko is getting advice from Susana about writing her CV. Use the list in Exercise 7b to complete the headings Eriko will use.**

- Personal Information
- (1) _____
- Research Experience
- Technical Skills
- (2) _____
- Publications
- (3) _____ and (4) _____
- Presentations

b **Look at Eriko's list in Exercise 8a and compare it with your ideas from Exercise 7b. Did you choose the same headings and put them in the same order as Eriko? If not, what is different?**

c ▶ 1.3 **Listen to the conversation again. What TWO things does Susana say about how a CV should be organised?**

9 a **In pairs, look at an extract from the CV of a student, Carlos, on page 86. According to Susana's advice in Exercise 8c, does Carlos need to make any changes to what he has written?**

b **When adding details to your CV, it is a good idea to use bullet points rather than full sentences. Look at the following revisions to another part of Carlos's CV and then answer the questions below.**

~~One of my research focuses was~~ to examine the relationship between vegetation and the hydroperiod ~~by~~ produc~~ing~~ detailed graphical profiles.

* produced detailed graphical profiles to examine the relationship between vegetation and the hydroperiod

~~The research for my PhD focused on the~~ analys~~is~~ ~~of~~ the intra- and inter-annual variability of perilagoonal vegetation.

* analysed the intra- and inter-annual variability of perilagoonal vegetation

1 What kind of word comes first in each bullet point? How is this word formed?
2 Why does he move *to examine the relationship between vegetation and the hydroperiod* to the end of the first sentence?

c **Rewrite the following sentences as bullet points.**

1 My main research focus was to generate specific carbohydrate oligomers by using pure cloned enzymes.
2 During my project, I focused on the creation of a new CD4 positive HeLa cell clone.
3 As part of the Cell Wall Genomics team, I have developed sensitive methods to determine the fine structure of pectins in maize.
4 I have been involved in investigating the way the myocardium adapts following exercise, particularly the adaptation that takes place at the sub-cellular level.

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a **Your CV should always include any publications you have worked on in their correct citation form. In pairs, answer the following questions.**

1 What is the correct order of information in a citation? Number the items in the box below in order from 1 to 6.

☐ page numbers ☐ journal volume and/or issue number
☐ title of article ☐ year ☐ journal name ☐ author's name

2 If the paper has not yet been published, what do you write instead of the *volume* and *page*?
3 If the paper has been submitted (given) to a journal but not yet accepted, what do you write instead of the *journal name*, *volume* and *page*?

b **Write out the information for three different publications Carlos has worked on (1–3) in the correct citation form.**

1 *Submitted manuscript.* / (2011) / Hernandez Sanchez, R. and Alvarez, C.M. / 'Salinity and intra-annual variability of perilagoonal vegetation'
2 Environmental Management Review / (2011) / 'Declining peri-dunal variability in Doñana' / *In press.* / Hernandez Sanchez, R., Gomez Herrera, S.A. / and Alvarez, C.M.
3 pp167–184 / 'Hydroperiod effects on peri-dunal vegetation' / Vol 2. / Spanish Hydrology Journal / (2010) / Hernandez Sanchez, R. and Alvarez, C.M.

11

Think about a job or a scholarship you would like to apply for and then write a first draft of your CV. Use the advice in Exercises 7 to 9 to help you.

Preparing for an interview

12 **Read the extract of an email to Eriko from Dr Caroline Hansford of SARF and then answer the following questions.**

1 How will Eriko be interviewed?
2 What does she have to do before the interview?
3 Why might this interview be particularly difficult?

> and we plan to hold interviews in the final week of July. Your interview has been scheduled for Thursday 28 July at 0900GMT. As you are currently based in the UK, we will be interviewing you by conference call. Please write back to us to confirm your availability for this date and time.
>
> We will be asking all interviewees to deliver a short presentation of their research proposal at interview. In your case, we would like to ask you to upload a video of yourself giving such a presentation no later than Wednesday 20 July.

13 **a** **Eriko has decided to write her presentation and then to memorise it. In pairs, make a note of the advantages and disadvantages of:**

- reading your presentation from a script
- memorising the script of your presentation
- not using a script (using notes only)

b ▶ 1.4 **Eriko has asked Carlos to comment on her presentation. Listen to Eriko's first two attempts and answer the following questions.**

1 How do you think Eriko feels?
2 What comment does Carlos make on her first attempt?

c **What advice do you think Carlos might give to Eriko on her second attempt?**

d ▶ 1.5 **Listen to Carlos's feedback. Complete the notes below.**

Good:
Remembered everything
Spoke more (1) _____
Speed OK
Practise more:
Make important words (2) _____ and (3) _____
Plan when to (4) _____
Practise (5) _____ words many times

Ask an (6) _____ (7) _____ to record your presentation so you can copy them.

e ▶ 1.6 **Listen to Eriko practising the introduction to her presentation again.**

1 Has she followed all of Carlos's advice?
2 Does the presentation sound better now?

f ▶ 1.7 **Listen to the following extracts from the presentation and mark the stressed words with a (•) as in the example.**

1 Hello. My name is … and I'm currently …

2 My research focuses on …

3 This is useful because …

4 For example, …

5 However, there are a number of problems with …

g **Complete the phrases in Exercise 13f with information that is true for you. Then practise saying the sentences, paying attention to stress and intonation.**

h **Imagine you are giving a short presentation like Eriko. *Either*: Choose a topic in your own research area and plan a short presentation (about 70 words). Plan where you will pause and which words you will stress, as in Exercise 13f. Then memorise the text. *Or*: Using the audioscript, memorise the beginning of Eriko's presentation. Then take turns to deliver your presentation to a partner. Give feedback on each other's presentations.**

14

a **Phone and video conferencing are both common for interviews and meetings nowadays. Complete the advice for interviews by conference call using the words and phrases in the box below.**

application form comfortable position facing late
phone number questions see shuffle thank tone of voice

CONFERENCE CALL INTERVIEWS

Before your interview

- Find out exactly who you will be talking to
- Check whether they will be able to (1) _____ you or just hear you
- Check the date, time, the (2) _____ to dial in on, and the right code to access the conference call
- Read your CV and (3) _____ again
- Practise answering questions you might be asked
- Prepare (4) _____ to ask the interviewer

During your interview

- Don't be (5) _____ !
- Use your (6) _____ to sound confident and enthusiastic
- Do not (7) _____ papers (this will make a noise)
- Sit in a (8) _____ – do not move about too much
- Speak very clearly, (9) _____ the microphone
- When the interview is over, (10) _____ the interviewer(s) and end positively

b **Look at the completed advice in Exercise 14a. Which do you think are the three best pieces of advice? Why?**

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Imagine you are being interviewed for a job or a fellowship. In pairs, make a list of questions which you might be asked. Then take turns to interview each other.