



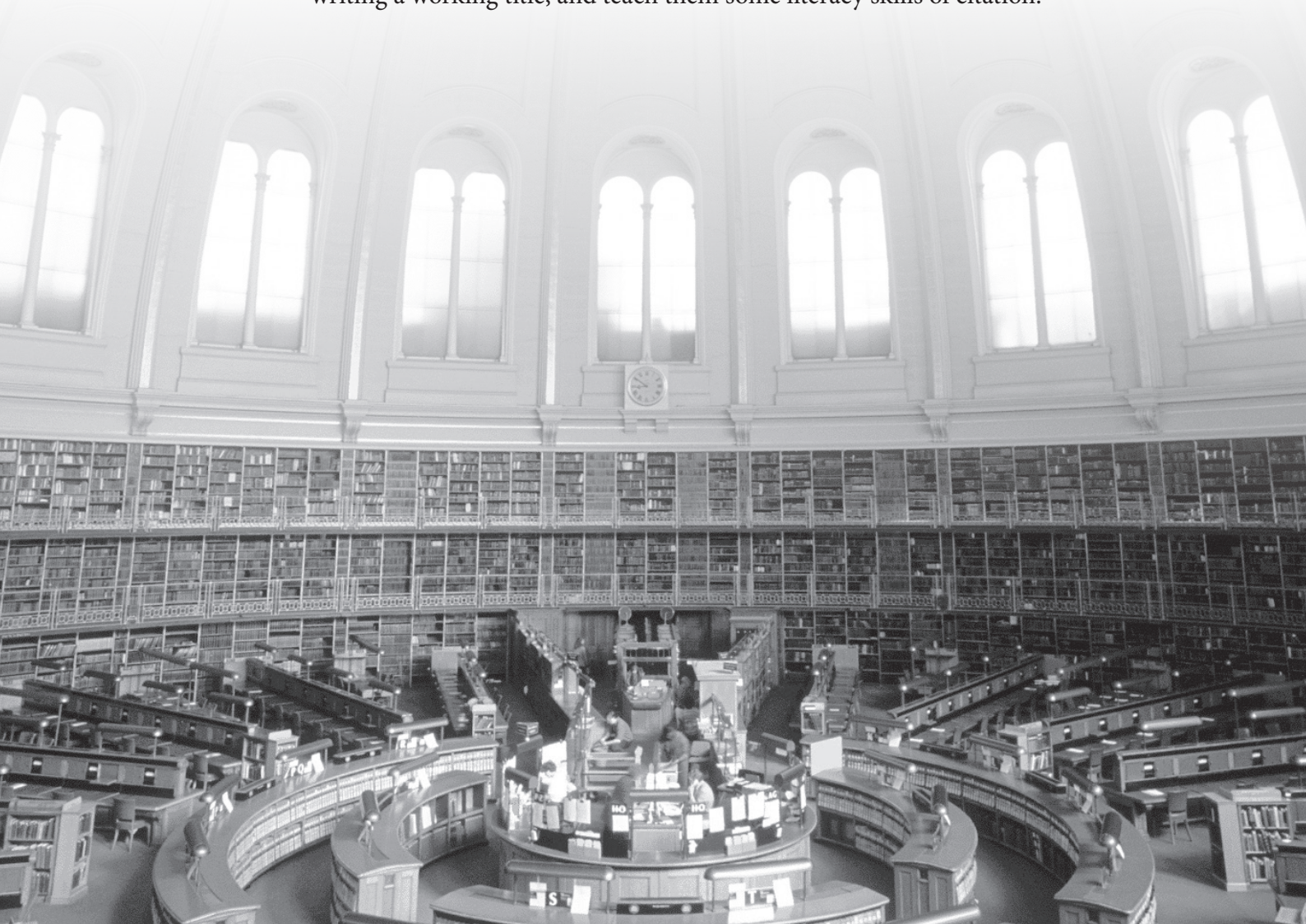
1

UNIT

Choosing a Topic

Unit Objectives

The aim of this unit is to enhance Ss' critical thinking ability while they are reading a research article in the field of chemistry, train their academic writing ability in writing a working title, and teach them some literacy skills of citation.



1

Critical Reading

Teaching objectives

The aim of this section is to enable Ss to figure out the whole structure of the academic text and the functions of each part, enhance language ability in using academic words and sentence patterns, and learn how to ask probing questions in critical thinking.

Lead-in

Teaching steps

- Introduce the definition and importance of EAP.
- Show Ss the objectives and contents of the EAP course for science and engineering.
- Inform Ss of the requirements and tasks of the course.
- Ask Ss to talk about their expectations for the course.

Understanding the text

Teaching steps

- Ask Ss to complete the following questionnaire to investigate their understanding of radioactivity and radiation.

No.	Questions and Max No. of Points
1	(a) Are you afraid of being exposed to radiation in your daily life? <i>If yes:</i> (b) Where do you think this radiation comes from?
2	(a) Do you think there are radiation sources (radioactive substances) in the house where you live? <i>If yes:</i> (b) Which ones?
3	Radiation from radioactive substances may be divided into three main types. (a) What are they called? (2 points) (b) What constitutes the radiation in each case? (4 points)

No.	Questions and Max No. of Points
4	After the reactor accident in Chernobyl in 1986, radiation could be detected from a range of Norwegian foodstuffs, particularly mutton and reindeer meat. How had the food become radioactive? (2 points)
5	After the Chernobyl accident, restrictions were imposed on the sale of mutton meat with radioactivity exceeding 600 Bq / kg. Radioactivity is measured in becquerel (Bq). What is the definition of 1 Bq? (3 points)
6	The radioactive substance caesium-137, which was found in mutton after the Chernobyl accident, has a half-life of 30 years. What is meant by this? (3 points)
7	Many types of spice are irradiated in order to kill bacteria. We say that the radiation is absorbed in the spice. What do you think happens in the spice when radiation is absorbed? (3 points)
8	What sorts of injuries can be found in the people who have been exposed to radiation from radioactive substances? (See below*)
9	In Sweden, more than half the electric energy is supplied by nuclear power. Do you think this should continue? Give a reason for your answer.
10	The Russian submarine <i>Komsomolets</i> sank near the island of Bjørnøya in 1989. Many people think that the sub should be raised. (a) Do you think that the <i>Komsomolets</i> is a threat to the environment in the northern seas? <i>If yes:</i> (b) In what way?

* Points were awarded according to the number of radiation injuries mentioned; 1 point for each type of injury listed (when correct). Exception: 2 points were awarded for mentioning mutations when these were explicitly connected with the initiation of cancer.

- Draw Ss' attention to the content and structure of the text title.
- Ask Ss to locate the key words in the title.
- Let Ss scan the subheadings to find out the general layout of the text and try to complete Task 1.
- Divide Ss into small groups of 3-4 to figure out the functions and content of the assigned part of the text (for example, assign the introduction part to Group 1, the methods part to Group 2, etc.), and try to answer the questions in Task 2.
- Ask Ss to search the text for some academic words or phrases and try to do the matching exercises in Task 3.
- Ask Ss to search the text for some academic sentence patterns and try to paraphrase the sentences in Task 5.

Supplementary information

- **Background information for the text**

Radiation is the emission or transmission of energy in the form of waves or particles through space or through a material medium, which includes electromagnetic radiation (such as radio waves, microwaves, visible light, X-rays, and gamma radiation $\langle\gamma\rangle$), particle radiation (such as alpha radiation $\langle\alpha\rangle$, beta radiation $\langle\beta\rangle$, and neutron radiation), acoustic radiation (such as ultrasound, sound, and seismic waves) and gravitational radiation (radiation that takes the form of gravitational waves, or ripples in the curvature of space time).

Radiation is often categorized as either ionizing or non-ionizing depending on the energy of the radiated particles. Ionizing radiation carries more than 10 eV, which is enough to ionize atoms and molecules, and break chemical bonds. This is an important distinction due to the large difference in harmfulness to living organisms. A common source of ionizing radiation is radioactive materials that emit α , β , or γ radiation, consisting of helium nuclei, electrons or positrons, and photons, respectively. Other sources include X-rays from medical radiography examinations and muons, mesons, positrons, neutrons and other particles that constitute the secondary cosmic rays that are produced after primary cosmic rays interact with the Earth's atmosphere.

Gamma rays, X-rays and the higher-energy range of ultraviolet light constitute the ionizing part of the electromagnetic spectrum. The lower-energy, longer-wavelength part of the spectrum including visible light, infrared light, microwaves, and radio waves is non-ionizing; its main effect when interacting with tissue is heating. This type of radiation only damages cells if the intensity is high enough to cause excessive heating. Ultraviolet radiation has some features of both ionizing and non-ionizing radiation. While the part of the ultraviolet spectrum that penetrates the Earth's atmosphere is non-ionizing, this radiation does far more damage to many molecules in biological systems than can be accounted for by heating effects, sunburn being a well-known example. These properties derive from ultraviolet's power to alter chemical bonds, even without having quite enough energy to ionize atoms.

The word "radiation" arises from the phenomenon of waves radiating from a source. This aspect leads to a system of measurements and physical units that are applicable to all types of radiation. The intensity of all types of radiation from a point source follows an inverse-square law in relation to the distance from its source. Like any ideal law, the inverse-square law approximates a measured radiation intensity to the extent that the source approximates a geometric point.

Perception of radiation is also a subject of study. For more information, Ss can make reference to the following published articles:

- 1) Broadbent, M. V. & Hubbard, L. B. (1992). Science and perception of radiation risk. *Radiographics*, 12(2), 381-392.
- 2) Darby, S. (1999). Radiation risks: Appropriate decisions come from valid data, not inaccurate perceptions of risk. *BMJ*, 319(7216), 1019-1020.
- 3) Jones, D. W. (2003). Essay review—Nuclear radiation, radioactivity and safety. *Contemporary Physics*, 44(1), 77-79.

- 4) Kolominsky, Y., Igumnov, S. & Drozdovitch, V. (2002). Psychological aspects of radiation risk perception by children after Chernobyl. *European Psychiatry*, 17(1), 116.
- 5) Perko, T. (2014). Radiation risk perception: A discrepancy between the experts and the general population. *Journal of Environmental Radioactivity*, 133, 86-91.
- 6) Zevos, N. (2002). Radioactivity, radiation, and the chemistry of nuclear waste. *Journal of Chemical Education*, 79(6), 692.

- **Chernobyl accident (Para. 1)**

It was a catastrophic nuclear accident that occurred on 26 April 1986 at the Chernobyl nuclear power plant near Pripyat in Ukraine. The accident happened when operators of the power plant ran a test on an electric control system of one of the reactors. It happened because of a combination of basic engineering deficiencies in the reactor and faulty actions of the operators. This led to a cascade of events resulting in a series of explosions and consequent fires that severely damaged the reactor building, completely destroyed the reactor, and caused the release of massive amounts of radioactive materials over a 10-day period.

- **Constructivist learning approach (Para. 3)**

It's the approach that people use to construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. With this approach, people are active creators of their own knowledge, reconciling new things with previous ideas and experience through questioning, exploring, assessing, changing, even discarding what they already know.

- **Half-life (Table 1)**

It is a term commonly used in nuclear physics to describe the time required for half the atoms in a radioactive substance to disintegrate.

Answers

TASK 1

Key words	Laypeople, radiation, understanding
Objective	To investigate laypeople's knowledge of radiation phenomena and risk
Methods used	Questionnaire

TASK 2

- 1 Respondents were aware of the harmful health effects of radiation, while they had little understanding of radiation.
- 2 There is smaller proportion of respondents who support continuing the production of nuclear power.

- 3 Mass media plays a very important role in their misunderstanding of radiation.
- 4 Teaching and information programs should take into account the lay conceptions of radiation and integrate factual information with practical / political considerations.

TASK 3

Paras. 1-2	1-e	2-f	3-b	4-a	5-c	6-h	7-g	8-d			
Paras. 3-6	1-k	2-h	3-c	4-d	5-a	6-b	7-e	8-j	9-f	10-i	11-g
Para. 7	1-b	2-c	3-h	4-a	5-d	6-f	7-e	8-g			
Paras. 8-11	1-f	2-a	3-i	4-k	5-h	6-g	7-c	8-j	9-b	10-d	11-e
Paras. 12-18	1-d	2-h	3-g	4-f	5-a	6-b	7-c	8-e			
Paras. 19-20	1-g	2-c	3-a	4-b	5-i	6-d	7-h	8-e	9-f		
Paras. 21-28	1-i	2-j	3-a	4-h	5-k	6-b	7-c	8-g	9-d	10-e	11-f

TASK 4

1-5	2 5 4 1 3
6-10	9 7 10 6 8
11-15	13 15 11 14 12
16-20	20 19 18 17 16
21-25	25 23 21 24 22
26-28	27 28 26

TASK 5

- 1 The answer reveals that the respondents fail to understand that a new nucleus will be produced when a radioactive atom is broken.
- 2 According to the view of constructivists, a person's ideas will survive school education and form an important basis for new learning.
- 3 The solution is to consider lay ideas and combine factual knowledge with practical or political factors.

TASK 6

Different types of radioactive elements will have different health effects, according to the characteristics of each type.

TASK 7

It may be argued that the population should have a sufficient understanding of radiation phenomena to secure individual safety as well as democratic decisions. To attain this, it is necessary for the communicators of radiation information to be familiar with laypeople's preconceptions of these phenomena. A questionnaire survey was conducted to examine non-experts' conceptions of radiation phenomena. The survey revealed an incomplete understanding of concepts such as "radioactive decay", "half-life" and "absorption of

radiation” and a lack of differentiation between “radiation” and “radioactive material”. Many respondents did not distinguish between sources ionizing radiation and other environmental hazards. Nuclear power plants and submarines were the most fearful sources of radiation. There are indications that the lay understanding of radiation phenomena and risk is to a large extent formed by the mass media and that “school knowledge” of these phenomena is not applied in situations belonging to the “real world”. To resolve this problem, new teaching and information procedures are needed. These should take into account the learners’ perceptions and should integrate “school knowledge” with the “real world”.

Enhancing language ability

Teaching steps

- Ask Ss to give themselves a score for the academic words and phrases in Task 1 with the given scale.
- Ask Ss to replace the underlined words or phrases in Task 2 with the academic words or phrases in Task 1.
- Ask Ss to group the words and phrases in Task 3 according to their similarity in meaning.
- Ask Ss to give themselves a score for the academic sentence patterns in Task 4 with the given scale.

Answers

TASK 2

- 1 betrays, conception
- 2 renders
- 3 exemplified, perception
- 4 prevalent, secure
- 5 prior to
- 6 proportion, gloomy
- 7 alternatives
- 8 characterized, constitutes, hazard
- 9 From the standpoint of, ranks
- 10 external, a prerequisite

TASK 3

- 1 **include:** comprise, embrace, consist of, be composed of, encompass, contain
- 2 **valid:** credible, weighty, well-grounded, rational, sensible, well-founded, viable, cogent, plausible, convincing, powerful
- 3 **basic:** fundamental, essential, underlying, prime, primary, root
- 4 **danger:** peril, threat, jeopardy, hazard, menace, risk
- 5 **describe:** represent, narrate, portray, characterize, depict, outline

- 6 **different:** incompatible, various, conflicting, inconsistent, contradictory, incongruous, discrepant, diverse, contrary
- 7 **cause:** spur, move, evoke, induce, inspire, motivate, stimulate, impel, instigate, prompt, urge
- 8 **clarify:** illuminate, rationalize, explicate, explain, justify, elucidate, account for, clear up
- 9 **highlight:** spotlight, accentuate, emphasize, attach importance to, give prominence to, accent, feature, underline, stress, give priority to, underscore
- 10 **factor:** item, ingredient, element, constituent, contributor, component

Critical thinking (asking questions)

Teaching steps

- Introduce some approaches that can be used to ask probing questions in critical thinking. The following approaches are available for reference:
 - a) Think about the research topic in an objective way.
 - b) Evaluate the arguments in the article to determine how strong or valid it is.
 - c) Think about some different arguments in relation to the topic.
 - d) Recognize any weaknesses or negative points that are in the reasoning part.
 - e) Provide structured reasoning and support for an argument that you wish to make.
- Ask each group to raise as many critical questions as possible about the assigned part (for example, assign the introduction part to Group 1, the methods part to Group 2, etc.), then compare their questions with the questions in Tasks 1 and 2.

Answers

TASK 1

- 1 The author's purpose in carrying out the survey is to investigate the understanding of radiation phenomena and risk among Norwegians who have a reasonable level of general education, but lack specialization in physical science. (*Answers may vary for the latter question.*)
- 2 *Answers may vary.*
- 3 *Answers may vary.*
- 4 *Answers may vary.*
- 5 *Answers may vary.*

TASK 2

- 1 The lay model of radiation phenomena differs significantly from the expert model.
- 2 The informal mass media are important sources of scientific knowledge for the public.
- 3 A comparison between the mass media's treatment of radiation phenomena after the Chernobyl accident and pupils' conceptions of such phenomena provided some evidence. In the respondents' answers, there are statements such as "becquerel is radioactivity per

kilogram of meat” and “the threat from the East” which are typical of the media.

- 4 *Answers may vary.*
- 5 *Answers may vary.*
- 6 *Answers may vary.*
- 7 Because lay ideas are amazingly persistent, even after formal instruction.
- 8 The findings from the present survey do not lend much support to such a hypothesis: There was no significant difference between the high-score group and the low-score group with respect to the degree of radiation fear or the attitude to the submarine *Komsomolets*.
- 9 *Answers may vary.*
- 10 *Answers may vary.*
- 11 The author suggests taking the lay conceptions into account and increasing the integration between factual information and practical / political considerations when designing teaching and information materials for use in schools, offices and mass media, the so-called STS (Science, Technology and Society) approach within school curriculum development. (*Answers may vary for the latter question.*)
- 12 *Answers may vary.*
- 13 *Answers may vary.*

Doing research projects

Teaching steps

- Play the video of Lecture 1 twice and ask Ss to answer the questions in Task 1.
- Ask Ss to watch Lecture 1 again and search for more related resources about radioactivity and radiation, and brainstorm some research questions.
- Divide the class into several groups and assign each group one research question in Task 3.
- Ask each group to work on their research question by searching for at least three related academic articles and write a short academic report (using as many patterns from the Academic Sentence Patterns as possible).
- Ask each group to present their report in class with PPT.

Answers

TASK 1

- 1 Solvents and pesticides, combustion smoke, virus aggressions, ultraviolet radiation and ionizing radiation.
- 2 Cells could identify and eliminate the DNA damage.
- 3 The stochastic effects are not systematic. Their development could not be predicted at the scale of an individual, opposite to the deterministic effects.
- 4 The healthy surrounding tissue may be exposed to radiation during the treatment.
- 5 Radiation dose should be kept as low as possible.

Script for Lecture 1

The Effects of Radiation on Our Health

DNA undergoes permanent attacks and there are numerous aggressive agents. The following could be mentioned: solvents and pesticides, combustion smoke, virus aggressions, ultraviolet radiation, and ionising radiation.

All molecules can be affected by radiation, but it is when DNA is impacted that there are the greatest consequences for cellular operations. The action of ionising radiation on DNA may be direct as well as indirect, via the water contained inside the cells. Water consists of free radicals. These free radicals, which are chemically very reactive, damage the DNA molecules located nearby.

DNA damage induced by radiation varies according to the nature of the radiation and the level of exposure.

Luckily, the cell has been provided with extremely efficient repair systems.

So there is a repair system which starts operating when DNA is damaged. In most cases, the repair works. But sometimes errors in genetic codes persist. These are referred to as mutations. The future of a bad repaired cell is uncertain. It can be identified and eliminated by the immune system or survive without any consequences for the body. However, both cases can affect our health, when cells die in great numbers, or when they are transformed into cancerous cells. If the radiation dose is high, a significant number of cells will be damaged and will die. This will involve effects which are referred to as deterministic effects. High doses generate systematic effects on the people that have been exposed. Their severity depends on the dose exposure, on the size of body area which has been exposed, and on the type of organs which have been affected.

The occurrence of cancerous cells is the other serious consequence. However, as opposed to deterministic effects, this effect is not systematic. The development of a cancer cannot be predicted at the scale of an individual. Only the current risk of an individual can be estimated. Such effects are referred to as stochastic effects.

Several groups of studies have shown that there is an increased risk of cancer in populations exposed to high doses, and that in some cases, it may take several decades before the cancer appears. The following are four cases.

- In the 1930's, female workers in the clock-making industry use radium-base paint to paint the hands of the clocks, and the numbers on the alarm clock dials.
- In the 1950's, before the mines were ventilated, uranium miners used to inhale air which was highly contaminated with radon. Thereafter, the levels of exposure dropped systematically.
- The bombs of Hiroshima and Nagasaki in August, 1945 caused the immediate death of 200,000 people. The 300,000 survivors were irradiated with various doses which were all delivered at high rates.
- For more than 30 years, the survival rate for cancer patients has steadily increased as progress has been made in the medical fields. But secondary cancer caused by treatment is still at risk. Despite efforts to target only cancerous cells during radiation treatment, the rays still touch the healthy surrounding tissue and may have carcinogenic effects.

These last three groups of studies have made it possible to quantify the relationship between radiation doses and cancer frequency. But it is difficult to assess the validity of this cause and effect relationship when the results are extrapolated for current doses which are much lower.

In order to determine if these extrapolations are accurate, studies are also conducted on low doses and dose rates. As there is no scientific evidence, a careful attitude involves, considering that effects exist at low doses. As regards radiation protection, actions are conducted on the basis of this principle of precaution.

2

Academic Writing

Teaching objectives

The aim of this section is to enable Ss to have a better understanding of basic elements of research papers, learn how to choose a topic and formulate research questions on the topic, and write a working title in their own discipline.

Understanding a research report or paper

Teaching steps

- Guide Ss to brainstorm the definition of research.
- Ask Ss to read the Critical Reading text again, then group them into 3-4 to discuss the questions in Task 1.
- Ask Ss to read the text “Research Reports for Technical Writing”, then discuss the questions in Task 2 with their group members.
- Summarize the key elements in writing a research paper.
- Ask Ss to find two articles from the SCI journals in their disciplines and fill in the table below with the information of the selected research articles.

	Article I	Article II
Title		
Total words		
Structure (I-M-R-D / I-R-D-M / I-M-R-D-C etc.)		

Answers

TASK 1

- 1 *Answers may vary.*
- 2 Four. There are “Introduction”, “Methods”, “Results and discussion” and “Conclusion” sections. To map the paper in a clear and logical argumentative structure.
- 3 Thirteen.

- 4 It is formal and objective.
- 5 *Answers may vary.*

TASK 2

- 1 Four. They are problem section, procedures section, results section and discussion section.
- 2 Because it will contribute to the credibility of the research.
- 3 Because it can allow the readers to duplicate the experiment if they have any doubt about your findings.
- 4 It may evaluate the research results fully, point out what questions remain unanswered and perhaps suggest directions for further research.
- 5 Accuracy, clarity, and completeness.

Deciding on a topic

Teaching steps

- Introduce the “AIM” principles of deciding on a topic.
- Ask Ss to check the topic of the Critical Reading text and discuss whether the topic is appropriate.
- Teach Ss how to narrow down a topic, then ask them to do further exercises in Tasks 2 and 3.

Answers

TASK 2

- 1 **Genetic Engineering** → The Impact of Genetic Engineering → The Impact of Genetic Engineering on Agricultural Practice / Food Shortage
- 2 **Breast-feeding Practice** → Breast-feeding Practice in Chinese Big Cities → The Impact of Urbanization on Breast-feeding Practice in Chinese Big Cities
- 3 **Internet Technology** → The General Impact of Internet Technology on Education → The Positive Impact of Internet Technology on Teaching Methodology

TASK 3

- 1
 - 1) Risks of Global Warming
 - 2) Social Issues and Global Warming
 - 3) The Impacts of Global Warming on Food Products
- 2
 - 1) Genetically Modified Foods and Health Issues
 - 2) Controversy over Genetically Modified Foods
 - 3) The Development of Genetically Modified Foods in China

- 3
 - 1) The Future of Nuclear Energy
 - 2) Safety Issues About Nuclear Power Plants
 - 3) Waste Management and Nuclear Power Plants
- 4
 - 1) Science Fraud in the Medical Field
 - 2) Science Fraud in China
 - 3) Research Pressure and Science Fraud

Formulating research questions

Teaching steps

- Inform Ss that an appropriate and specific topic is determined by raising clear, focused and specific questions.
- Give Ss an example topic, then teach them how to raise appropriate research questions on the topic.
- Ask Ss to do related exercises in Tasks 1 and 2.

Answers

TASK 1

- 1 **Nuclear Waste**
 - 1) What is nuclear waste?
 - 2) Why is it difficult to dispose of nuclear waste?
 - 3) What will happen if nuclear waste is not properly disposed of?
 - 4) How to dispose of nuclear waste safely and economically?
- 2 **Threats of Artificial Intelligence**
 - 1) What are the present threats of artificial intelligence?
 - 2) What are the future threats?
 - 3) How can human beings control those threats?
- 3 **Global Warming and Its Effects**
 - 1) What is global warming?
 - 2) How does it affect agriculture?
 - 3) How does it affect the environment?
 - 4) How does it affect human health?
- 4 **Genetically Modified Foods**
 - 1) What are the advantages and disadvantages of GMFs?
 - 2) Why do GMFs gain in popularity in the developing countries?
 - 3) How safe are GMFs?
 - 4) What are the effects of GMFs on human health?

TASK 2 (for reference)

My topic	Science Fraud in China
My Reasons	<ol style="list-style-type: none"> 1 It exists in universities and science institutes. 2 There are many reports and articles discussing science fraud. 3 It is manageable since the study involves questionnaires and interviews.
Research Questions	<ol style="list-style-type: none"> 1 What is the current situation of science fraud in tertiary institutions? 2 What are the underlying causes of science fraud? 3 What measures could be taken to address the problem?

Writing a working title**Teaching steps**

- Illustrate some characteristics of a successful title.
- Show Ss some titles as examples, then ask them to complete Tasks 1 and 2.
- Divide Ss into groups to analyze two of the titles in Task 3 with critical thinking.
- Ask each student to write a working title and raise some research questions according to the topic he / she has chosen.

Answers**TASK 1**

- 1 They are phrases.
- 2 Yes, they can.
- 3 There are three variables (urbanization, socioeconomic status, infant-feeding practices) in Title 3.
- 4 The variables are correlated to each other, and they can be studied.
- 5 To fully indicate the topic of the study, the title may include key words of content, methods, variables, and scope of the study.

TASK 2

- 1 Not appropriate. It is better to use “Economic Effects of Climate Change”.
- 2 Good.
- 3 Good.
- 4 Good.
- 5 Good.
- 6 Good.
- 7 Good.

3

Literacy Skills

Teaching objectives

The aim of this section is to enable Ss to know how to avoid plagiarism and master some citation methods (paraphrasing, quoting and summarizing).

Avoiding plagiarism

Teaching steps

- Introduce the importance of academic ethics.
Academic ethics: Academic ethics refers to the norms or criteria that are abided by in academic research, which is the minimum requirement of doing research and the academic conscience of scholars. There is no doubt that plagiarism in paper writing is against the academic code of ethics. The implementation and maintenance of academic ethics depend not only on the conscience and self-discipline of the scholar himself / herself, but also on the academic policies, regulations and public opinion in the academic circle.
- Let Ss skim the definitions of plagiarism in Task 2, then check them with the situations mentioned in Task 1.
- Organize a discussion on plagiarism on Chinese campuses.

Answers

TASK 1

1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7 N 8 Y 9 Y 10 Y

TASK 3

- 1 not common knowledge
- 2 not common knowledge
- 3 not common knowledge
- 4 not common knowledge
- 5 not common knowledge

Citation

Teaching steps

- Ask Ss to skim the text about citation and discuss with their partners the definition, function and methods (paraphrasing, quoting and summarizing) of citation.
- Introduce Ss to some referencing skills.

Answers

TASK

Numerous research studies demonstrate consistently that content-based second language teaching promotes both language acquisition and academic success (Grabe & Stoller, 1997; Kasper, 1994; Krueger & Ryan, 1993; Snow & Brinton, 1997; Stryker & Leaver, 1997; Wesche, 1993). Students receiving linked instruction perform better in language courses than those not receiving such instruction (Kasper, 1997). They reap the benefits of significant gains in the second language, e.g., in the receptive skills of listening and reading (Burger et al., 1997; Ready & Wesche, 1992) and in the productive skills of writing (Burger, 1989) and speaking (Burger & Chrétien, 2001). They also achieve comparable or even better mastery of disciplinary content than ESL students or native English-speaking students not receiving content-based language instruction (Andrade & Makaafi, 2001; Babbitt, 2001; Kasper, 1994; Winter, 2004).

The topic sentence is “content-based second language teaching promotes both language acquisition and academic success.” The writer uses literature evidence to show that this is a well-researched topic.

Quoting

Teaching steps

- Introduce the most convenient way of citation—quoting.
- Make further explanation of two quoting versions (author-focused quoting and information-focused quoting) with examples.
- Ask Ss to quote the texts in Task 1 in author-focused and information-focused versions respectively.

Answers

TASK 1

- 1 **Author-focused version:** According to Rosemary (1983), most Nigerians believe that “urban existence is synonymous with extreme individual and community poverty”.
Information-focused version: Influenced by Western cultures, most Nigerians believe that “urban existence is synonymous with extreme individual and community poverty” (Rosemary, 1983).

- 2 **Author-focused version:** Rosemary (1983) suggested that mothers should be educated on “how to prepare and use hygienically acceptable supplementary foods”.

Information-focused version: We may educate mothers on “how to prepare and use hygienically acceptable supplementary foods” (Rosemary, 1983).

Summarizing

Teaching steps

- Let Ss compare direct quotation with summarizing and discuss the advantages of summarizing.
- Introduce Ss to the classification and rules of summarizing, then ask them to complete Task 1.
- Divide Ss into groups to summarize the assigned paragraphs in Tasks 2 and 3.

Answers

TASK 1

1 c b a d 2 b a c d 3 a d c b

TASK 2

- 1 Chinese big cities suffer from growing traffic problems.
- 2 Some long and complicated sentences mean very little.
- 3 The basic tenet of constructivism holds that learners themselves construct knowledge, rather than receive it from outside.
- 4 Some educators contend that deciding on a major is the most critical decision students face when entering college, whereas others argue that the most important thing for students to discover in university is their true interests, because many establish careers not related to the major they studied in college.
- 5 The majority of American Internet users, especially teenagers, use SNS, which has altered the pace and process of making and maintaining friendships.
- 6 According to Hirschi and Gottfredson, the propensity (倾向) of someone to commit crime comes from his or her lack of self-control.

TASK 3

- 1 Gordon & Taylor (1989) believe that although most people feel a great deal of anguish when faced with writing tasks, this feeling can be managed by developing personal procrastination avoidance strategy.
- 2 Frick (1991) claims that history has demonstrated that technology affects education profoundly. Considering the definition of technology broadly, one may say that prehistoric people used primitive technologies to teach skills to their youngsters.

- 3 Hewitt (1996) believes that acts of academic dishonesty undermine the validity of teaching and learning.
- 4 Edelson (2002) claims that political and legal institutions lead to investments by individuals, which has a higher impact on raising living standards of countries than these countries' natural resources do.