

Graduate School of Systems and Information Engineering

Introductory Technical Writing

Essential skills for
academic writing
OAL0000

Topic 7: Problem-solution texts

Instructor: Neil Millar

Problem-solution text – what is it?

- Problem – *What is the problem?*
- Solution – *How can we address it?*
- Evaluation – *Does it work? Further problems*
- → Problem – Solution ‘Chains’
- Logical / reader friendly structure
- Useful in Introductions
- ...an example

Problem-solution text – what is it?



ELSEVIER

Food Chemistry 73 (2001) 23–30

Food
Chemistry

www.elsevier.com/locate/foodchem

Inhibitory effects of various antibrowning agents on apple slices

S.M. Son, K.D. Moon, C.Y. Lee *

Department of Food Science and Technology, Cornell University, Geneva, NY 14456, USA

Received 3 May 2000; received in revised form 11 September 2000; accepted 11 September 2000

Task 1: Clouds and Fog as a Source of Water in Chile



Tasks adapted from: Swales, J. M., & Feak, C. B. (2004). *Academic writing for graduate students: Essential tasks and skills*. University of Michigan Press.

Task 1: Clouds and Fog as a Source of Water in Chile

1. Read quickly. Then in your groups:

- *What is the problem?*
- *What was the solution?*
- *How does the solution work?*
- *Was the solution successful?*

2. Underline unknown words – check in groups

Task 1: Clouds and Fog as a Source of Water in Chile

- [1] ... despite an **abundance** of ...
- [4] This **absence** of rainfall ...
- [5] ...must carefully **ration** their water
- [10] ...droplets of water flow down the nets into a **trough**
- [19]...the community lacked a clear **commitment** to the project
- [19] ... the community **petitioned** for water to be piped in from 20 km away
- [20] ... the village **abandoned** this **viable** alternative technology

Task 1: Clouds and Fog as a Source of Water in Chile

1. The text contains a description of how the fog harvesting system works. It also contains references to various events that happened over time. EITHER, draw a diagram showing how this process works. OR, draw a timeline showing the sequence in which events happened.
Then, explain your diagram or timeline to another student (or group).

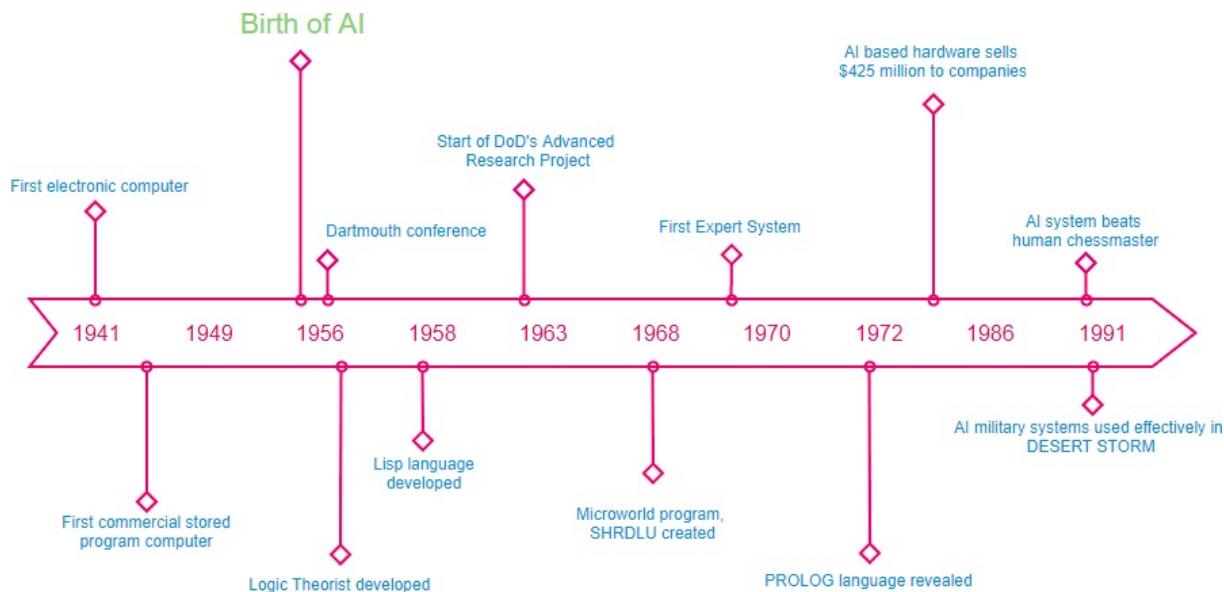
Task 1: Clouds and Fog as a Source of Water in Chile

1. The text contains a description of fog harvesting system works. It also contains references to various events that happened over time. EITHER, draw a diagram showing how this process works. OR, draw a timeline showing the sequence in which events happened.
Then, explain your diagram or timeline to another student (or group).

Task 1: Clouds and Fog as a Source of Water in Chile

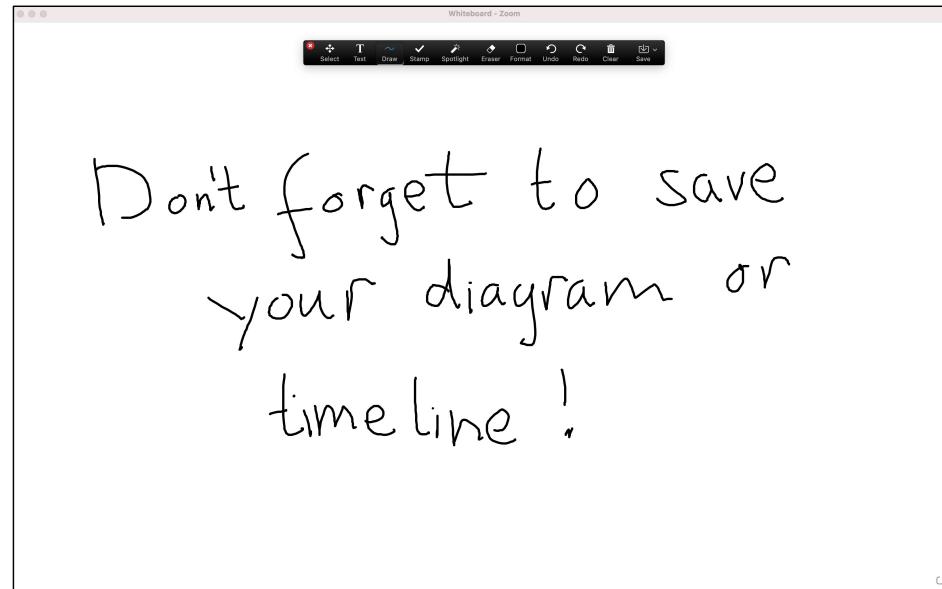
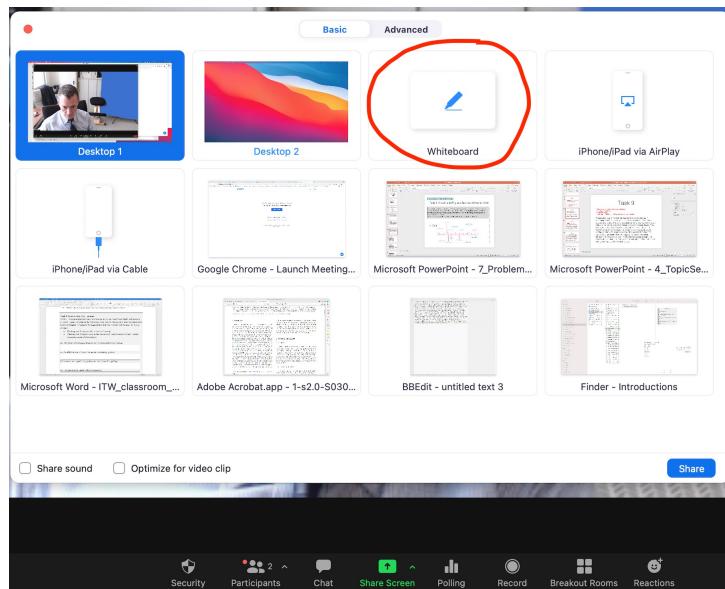
1. The text contains a description of fog harvesting system works. It also contains references to various events that happened over time. EITHER, draw a diagram showing how this process works. OR, draw a timeline showing the sequence in which events happened.

Then, explain your diagram or timeline to another student (or group).

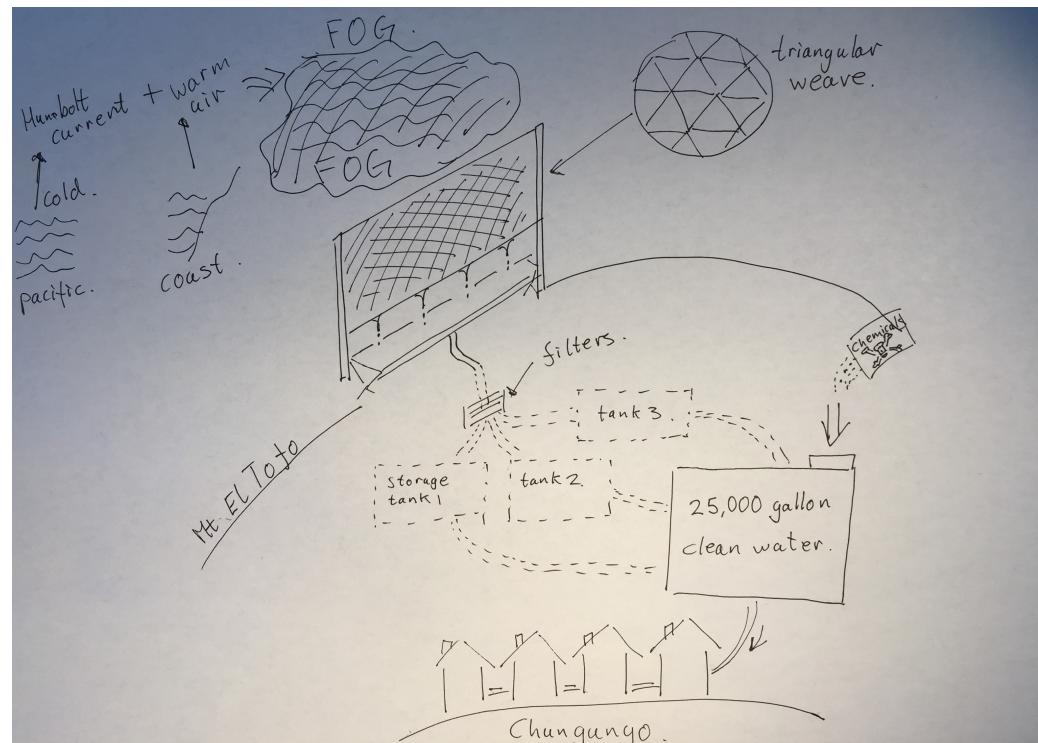


Task 1: Clouds and Fog as a Source of Water in Chile

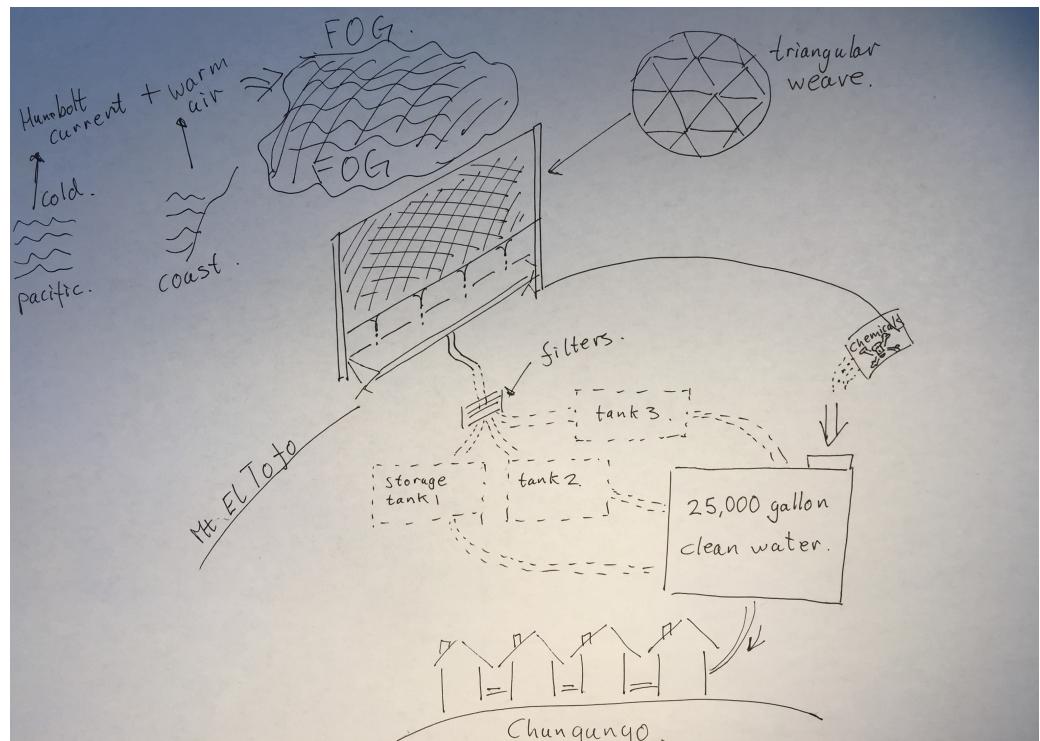
You can use the whiteboard function in Zoom



Introductory Technical Writing

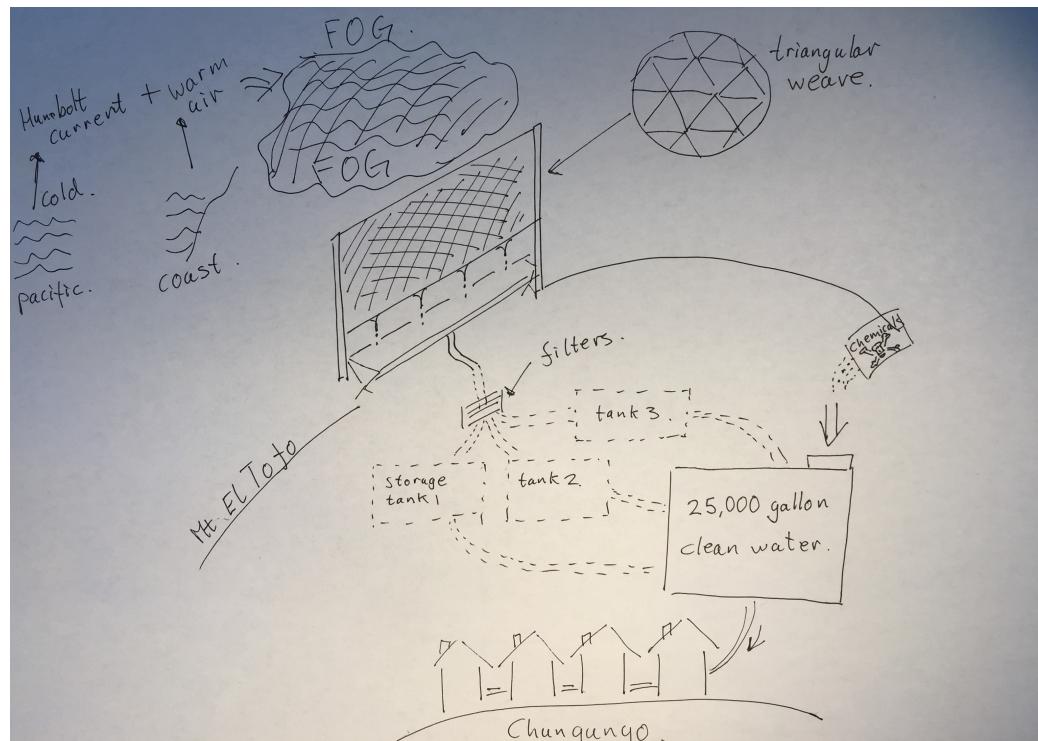


Introductory Technical Writing



Fog collects over the sea and moves inland. The fog harvesting systems is located ontop of Mt El Tofo. Polypropylene nets are suspended between wooden posts. When the fog hits these, water droplets are trapped in the triangular weave. This drips down the net and is collected in metal troughs. The water then passes through filters into a series of underground tanks. It is collected in a large 25,000 gallon tank where chemicals are added to kill bacteria. Then it is ready to be piped to homes in the village of Chunungo.

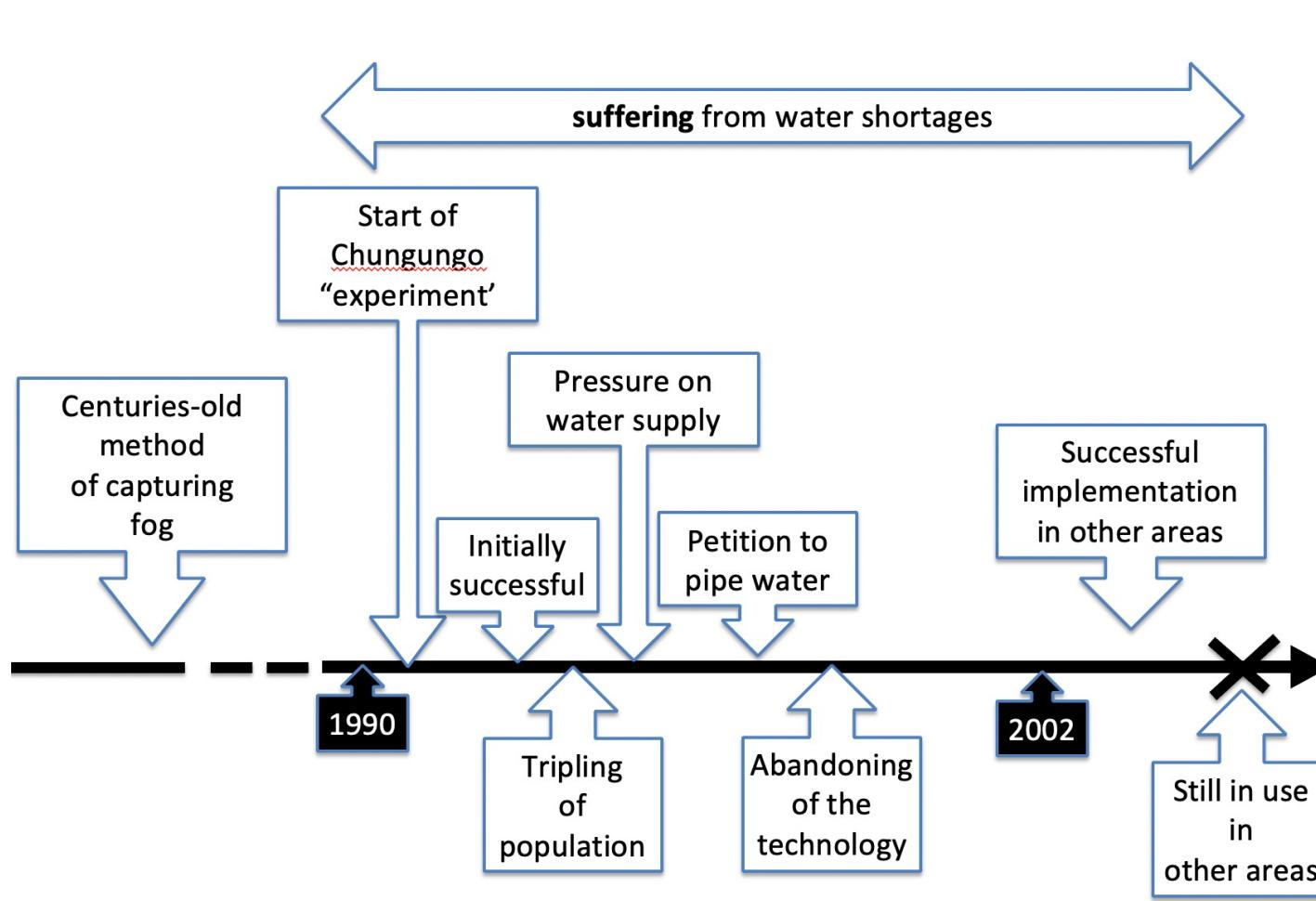
Introductory Technical Writing



Fog **collects** over the sea and **moves** inland. The fog harvesting systems **is located** ontop of Mt El Tofo. Polypropylene nets **are suspended** between wooden posts. When the fog **hits** these, water droplets **are** **trapped** in the triangular weave. This **drips** down the net and **is** **collected** in metal troughs. The water then **passes** through filters into a series of underground tanks. It **is collected** in a large 25,000 gallon tank where chemicals **are** **added** to kill bacteria. Then it is ready to **be piped** to homes in the village of Chunungo.

- northern coastal villages **have suffered** in recent years from water shortages
- scientists in the 1990s **implemented** an interesting solution
- the system **is** [...] no longer in use **(de la Lastra 2002)**
- The availability of water **led** to a tripling of the population from 300 to 900, putting pressure on the water supply
- ... they **did not add** new nets to increase the water supply
- [they] **petitioned** for water to be piped ...
- the village **abandoned** this viable alternative technology
- the Chungungo experience **has led** to successful implementation of fog harvesting initiatives in other mountainous costal areas [...], providing much needed fresh water to small communities.

Task 1: Clouds and Fog as a Source of Water in Chile



Task 1: Clouds and Fog as a Source of Water in Chile

Now, working in pairs or small groups, answer questions 2 through 9.

Task 1: Clouds and Fog as a Source of Water in Chile

1. What is the main verb tense used in Sentences 7 through 16? Why is this?

[6] To address this problem scientists in the 1990s implemented an interesting solution on El Tofo mountain near the village of Chungungo. [7] Using conventional technology, researchers have redevised a centuries-old method to capture the water droplets of the fog in a process referred to as fog harvesting (Schemenauer and Cereceda 1991). [8] In this method, triangular-weave polypropylene nets **are** attached to wooden support posts on El Tofo mountain to serve as water collectors. [9] Each of these nets **can** collect approximately 40 gallons of water each day. [10] When the fog develops, droplets of water **are** trapped in the nets and then **flow** down the nets into a trough. [11] From the troughs, the water **drains** through filters into a series of underground tanks. [12] The water **is** then piped to a 25,000-gallon storage tank, where it **is** chemically treated to kill disease-causing organisms. [13] Finally, the water **flows** to individual households, just as in traditional water systems. [14] This collection system **can** supply as much as 2,500 gallons per day, enough for the entire community to drink, wash, and water small gardens. [15] The water **is** not only clean, but far less expensive than water delivered to the area. [16] Moreover, it **is** collected at no apparent cost to the environment.

Task 1: Clouds and Fog as a Source of Water in Chile

2. Identify phrases consisting of this + noun in the text. How many of these are this + summary? What purpose do they serve?

[6] To address this problem scientists in the 1990s implemented an interesting solution on El Tofo mountain near the village of Chungungo. [7] Using conventional technology, researchers have redevised a centuries-old method to capture the water droplets of the fog in a process referred to as fog harvesting (Schemenauer and Cereceda 1991). [8] In this method, triangular-weave polypropylene nets are attached to wooden support posts on El Tofo mountain to serve as water collectors. [9] Each of these nets can collect approximately 40 gallons of water each day. [10] When the fog develops, droplets of water are trapped in the nets and then flow down the nets into a trough. [11] From the troughs, the water drains through filters into a series of underground tanks. [12] The water is then piped to a 25,000-gallon storage tank, where it is chemically treated to kill disease-causing organisms. [13] Finally, the water flows to individual households, just as in traditional water systems. [14] This collection system can supply as much as 2,500 gallons per day, enough for the entire community to drink, wash, and water small gardens. [15] The water is not only clean, but far less expensive than water delivered to the area. [16] Moreover, it is collected at no apparent cost to the environment.

Task 1: Clouds and Fog as a Source of Water in Chile

3. Where and how is the solution introduced?

[6] To address this problem scientists in the 1990s implemented an interesting solution on El Tofo mountain near the village of Chungungo. [7] Using conventional technology, researchers have redevised a centuries-old method to capture the water droplets of the fog in a process referred to as fog harvesting (Schemenauer and Cereceda 1991). [8] In this method, triangular-weave polypropylene nets are attached to wooden support posts on El Tofo mountain to serve as water collectors. [9] Each of these nets can collect approximately 40 gallons of water each day. [10] When the fog develops, droplets of water are trapped in the nets and then flow down the nets into a trough. [11] From the troughs, the water drains through filters into a series of underground tanks. [12] The water is then piped to a 25,000-gallon storage tank, where it is chemically treated to kill disease-causing organisms. [13] Finally, the water flows to individual households, just as in traditional water systems. [14] This collection system can supply as much as 2,500 gallons per day, enough for the entire community to drink, wash, and water small gardens. [15] The water is not only clean, but far less expensive than water delivered to the area. [16] Moreover, it is collected at no apparent cost to the environment.

Task 1: Clouds and Fog as a Source of Water in Chile

4. The passage could be extended to include information about the maintenance of the fog collection system. Where might you place this information?

- a) the dimensions of the nets
- b) the brand name on the netting
- c) where the netting can be purchased
- d) the method for attaching the netting to the posts
- e) the time of day the fog comes in
- f) the size of the water droplets
- g) the trough materials
- h) the storage tank materials and dimensions
- i) the duration of the fog season
- j) the time needed to construct the system

Task 1: Clouds and Fog as a Source of Water in Chile

5. Where would you place this information?

[15] The water is not only clean, but far less expensive than water delivered to the area. The cost of operating and maintaining the system, which averages nearly \$12,000 a year, is low compared to other means of providing water.

Task 1: Clouds and Fog as a Source of Water in Chile

6. In the end what is the overall evaluation of the system? What 'evaluative' language can you find in the final paragraph?

[17] Despite the initial success of fog harvesting in Chungungo, the system is, unfortunately, no longer in use (de la Lastra 2002). [18] The availability of water led to a tripling of the population from 300 to 900, putting pressure on the water supply (IDCR, 2003). [19] Because the community lacked a clear commitment to the project (see Diehl, 2010, for a full explanation), they did not add new nets to increase the water supply, and instead petitioned for water to be piped in from 20 km away. [20] Although the village abandoned this viable alternative technology, the Chungungo experience has led to successful implementation of fog harvesting initiatives in other mountainous coastal areas of Chile, Ecuador, Mexico, and Peru, providing much needed fresh water to small communities.

7. What is your reaction to the discussion of the failure of the system in Chile?

Task 1: Clouds and Fog as a Source of Water in Chile

8. The Fog Harvesting text discussed some causes and effects. Look at paragraph 3. With a partner identify and underline the language that establishes the cause-effect connection.

[18] The availability of water led to a tripling of the population from 300 to 900, putting pressure on the water supply (IDCR, 2003). [19] Because the community lacked a clear commitment to the project (see Diehl, 2010, for a full explanation), they did not add new nets to increase the water supply, and instead petitioned for water to be piped in from 20 km away. [20] Although the village abandoned this viable alternative technology, the Chungungo experience has led to successful implementation of fog harvesting initiatives in other mountainous coastal areas of Chile, Ecuador, Mexico, and Peru, providing much needed fresh water to small communities.

1. Language focus: Passive voice

1. Language focus: Passive voice

- Underline passive constructions
- Why is it used? Could you rephrase them in the active voice?

[6] To address this problem scientists in the 1990s implemented an interesting solution on El Tofo mountain near the village of Chungungo. [7] Using conventional technology, researchers have redeveloped a centuries-old method to capture the water droplets of the fog in a process referred to as fog harvesting (Schemenauer and Cereceda 1991). [8] In this method, triangular-weave polypropylene nets are attached to wooden support posts on El Tofo mountain to serve as water collectors. [9] Each of these nets can collect approximately 40 gallons of water each day. [10] When the fog develops, droplets of water are trapped in the nets and then flow down the nets into a trough. [11] From the troughs, the water drains through filters into a series of underground tanks. [12] The water is then piped to a 25,000-gallon storage tank, where it is chemically treated to kill disease-causing organisms. [13] Finally, the water flows to individual households, just as in traditional water systems. [14] This collection system can supply as much as 2,500 gallons per day, enough for the entire community to drink, wash, and water small gardens. [15] The water is not only clean, but far less expensive than water delivered to the area. [16] Moreover, it is collected at no apparent cost to the environment.

1. Language focus: Passive voice

- Underline passive constructions in the process description.
- Why is it used? Could you rephrase them in the active voice?

[6] To address this problem scientists in the 1990s implemented an interesting solution on El Tofo mountain near the village of Chungungo. [7] Using conventional technology, researchers have redeveloped a centuries-old method to capture the water droplets of the fog in a process referred to as fog harvesting (Schemenauer and Cereceda 1991). [8] In this method, triangular-weave **polypropylene nets are attached to wooden support posts** on El Tofo mountain to serve as water collectors. [9] Each of these nets can collect approximately 40 gallons of water each day. [10] When the fog develops, **droplets of water are trapped in the nets** and then flow down the nets into a trough. [11] From the troughs, the water drains through filters into a series of underground tanks. [12] **The water is then piped** to a 25,000-gallon storage tank, where **it is chemically treated** to kill disease-causing organisms. [13] Finally, the water flows to individual households, just as in traditional water systems. [14] This collection system can supply as much as 2,500 gallons per day, enough for the entire community to drink, wash, and water small gardens. [15] The water is not only clean, but far less expensive than water delivered to the area. [16] Moreover, **it is collected at no apparent cost** to the environment.

1. Language focus: Passive voice

We use the passive voice when the process is generally carried out by a person, machine or another outside force.

- *After the first step, lime is added to the water.*
- *Cf. After the first step, a technician adds lime to the water.*
- *Finally, the rocket is drawn to earth (by gravity).*
- *Cf. Finally, gravity draws the rocket to earth.*

1. Language focus: Passive voice

We use the active voice when The process is viewed as a natural one.

- Acid rain falls on the soil and ...

To de-emphasize intervention by outside force.

- The water flows from the first tank to the second.
- Cf. The water is pumped from the first tank to the second.

Several key players in the process, each with important roles.

- The judge chooses the instructions, but the jury applies them to the case at hand.

1. Language focus: Passive voice

We use the **active voice** when the process is viewed as a natural one or we want to deemphasize outside intervention.

We use the **passive voice** when the process is generally carried out by a person, machine or another outside force.

[11] From the troughs, the water drains through filters into a series of underground tanks. [12] The water is then piped to a 25,000-gallon storage tank, where it is chemically treated to kill disease-causing organisms. [13] Finally, the water flows to individual households, just as in traditional water systems.

Fog collects over the sea and moves inland. The fog harvesting systems is located ontop of Mt El Tofo. Polypropylene nets are suspended between wooden posts. When the fog hits these, water droplets are trapped in the triangular weave. This drips down the net and is collected in metal troughs. The water then passes through filters into a series of underground tanks. It is collected in a large 25,000 gallon tank where chemicals are added to kill bacteria. Then it is ready to be piped to homes in the village of Chunungo.

1. Language focus: Passive voice

- ‘By + human agent’ relatively uncommon
- An exception
 - *The theory of transformational grammar was first developed by Noam Chomsky.*
 - *The sequence was discovered by the Italian mathematician Leonardo of Pisa ...*
- Historical background

1. Language focus: Passive voice

- ‘By + human agent’ relatively uncommon
- An exception – historical background
 - The theory of transformational grammar **was first developed by** Noam Chomsky.
 - The sequence **was discovered by** the Italian mathematician Leonardo of Pisa ...
- In fact, we are more likely to find ‘by + process’
 - The chances of finding oil **are often estimated by** seismic survey.
 - Measurements **can be made more accurate by** temperature control.

1. Language focus: Passive voice

Task 2: Passive voice + by + process

Make the statements more informative by replacing the noun phrase with one or more verb phrases.

- Teaching can be improved by in-service training courses.
 - Teaching can be improved by asking teachers to attend a range of short courses throughout much of their careers.
-
1. The spread of infectious diseases can be controlled by **vaccination**.
 2. Possible harmful effects of drugs can be reduced by **tests**.
 3. Information on political preferences can be found by **polling**.
 4. Bacteria in meat can be killed by **radiation**.
 5. Changes in land use can be detected by **remote sensing**.

Today

Feedback on paragraph writing task

- time to ask questions after class

Problem solutions texts

- Passive voice
- Cause and effect
- Describing processes

If time

- Topic 6 ...Cohesion

1. Language focus: Passive voice

Task 2: Passive voice + by + process

Make the statements more informative by replacing the noun phrase with one or more verb phrases.

1. The spread of infectious diseases can be controlled by implementing national vaccination programs for infants in at-risk countries.
2. Possible harmful effects of drugs can be reduced by conducting carefully designed, large-scale clinical trials.
3. Information on political preferences can be obtained by conducting an opinion poll of a representative sample of the population.
4. Bacteria found in meat can be killed by a treatment with brief but intense period of radiation between butchering and packing.*
5. Changes in land use can be detected by comparing images taken by satellite over a period of time.

*Noun phrase

1. Language focus: Passive voice

Linking passive constructions

[12] **The water** is then piped to a 25,000-gallon storage tank, where **it** is chemically treated to kill disease-causing organisms. [13] Finally, **the water** flows to individual households, just as in traditional water systems.

[12] **The water** is then **piped** to a 25,000-gallon storage tank, **treated** to kill disease-causing organisms, and **delivered** to individual households, just as in traditional water systems.

1. Language focus: Passive voice

Linking passive constructions

- How are the following ambiguous, and what can you do about it?
 1. The liquid is collected and kept for 24 hours.
 2. The sample is collected and stored in a sterile container.
 3. In consumer research, individuals are selected and interviewed by telephone.

1. Language focus: Passive voice

Linking passive constructions

- How are the following ambiguous, and what can you do about it?
 1. The liquid is collected and kept for 24 hours.
 2. The sample is collected and stored in a sterile container.
 3. In consumer research, individuals are selected and interviewed by telephone.

1. Language focus: Passive voice

Linking passive constructions

The oil is skimmed from the surface using a boom.

The oil is pumped into a tank for recycling.

- The oil is skimmed from the surface using a boom and then pumped into a tank for recycling.
- After being skimmed from the surface using a boom, the oil is pumped into a tank for recycling.
- Oil skimmed from the surface using a boom is pumped into a tank for recycling.

1. Language focus: Passive voice

Linking passive constructions

The glass is **cut** to size. It is **inspected** to determine if it has any imperfections. The glass is **heated** to over 600oC. The glass is **cooled** in a step known as quenching.

- The glass is cut to size and inspected to determine if it has any imperfections. It is then heated to over 600oC and cooled in a step known as quenching.

1. Language focus: Passive voice

Task 3: Linking passives

Join the sentences appropriately. Show the sequence of events. Add as much detail as possible - e.g. make noun-phrases longer; show the process; state by whom (if important!).

1. A specimen is collected.
2. The specimen is labeled.
3. The specimen is analyzed.
4. The results are recorded.
5. A report form is completed.
6. The report is dispatched.
7. The report is read.
8. The report is acted upon.
9. The report is filed.

1. Language focus: Passive voice

1. A specimen is collected.
2. The specimen is labeled.
3. The specimen is analyzed.
4. The results are recorded.
5. A report form is completed.
6. The report is dispatched.
7. The report is read.
8. The report is acted upon.
9. The report is filed.

A specimen is first collected, and then labeled with the patient's name, before being analyzed in the laboratory.

1. Language focus: Passive voice

1. A specimen is collected.
2. The specimen is labeled.
3. The specimen is analyzed.
4. The results are recorded.
5. A report form is completed.
6. The report is dispatched.
7. The report is read.
8. The report is acted upon.
9. The report is filed.

A specimen is first collected, and then labeled with the patient's name, before being analyzed in the laboratory. The results are recorded and a report form detailing the test results is then completed.

1. Language focus: Passive voice

1. A specimen is collected.
2. The specimen is labeled.
3. The specimen is analyzed.
4. The results are recorded.
5. A report form is completed.
6. **The report is dispatched.**
7. **The report is read.**
8. **The report is acted upon.**
9. **The report is filed.**

A specimen is first collected, and then labeled with the patient's name, before being analyzed in the laboratory. The results are recorded and a report form detailing the test results is then completed. This is dispatched to the patients doctor, where it will be read, where necessary, acted upon and finally filed.

2. Language focus: -*ing* clause of Cause and Effect

2. Language focus: -*ing* clause of Cause and Effect

- An increase in demand was **caused** by a rise in prices ...
- The tsunami was **triggered** by a very powerful earthquake.
- [Text 1: 18] The availability of water **led to** a tripling of the population from 300 to 900, **putting** pressure on the water supply (IDCR, 2003).

2. Language focus: -*ing* clause of Cause and Effect

- [Text 1: 20] ...the Chungungo experience has **led to** successful implementation of fog harvesting initiatives in other mountainous coastal areas, **providing** much needed fresh water to small communities.

2. Language focus: -*ing* clause of Cause and Effect

- A current is sent through the material. As a result, the electrons are polarized.
- A current is sent through the material, polarizing the electrons.
- When the piston is drawn upward, the air below rises. This causes the pressure to fall.
- When the piston is drawn upward, the air below rises, thus causing the pressure to fall.

2. Language focus: -*ing* clause of Cause and Effect

- **Problem:** Prices rise, *thus increasing* the chance of hyperinflation.
- **Process:** Prices rise, *thus leading* to a drop in demand.
- **Solution:** Prices rise, *thus increasing* earnings that can then be reinvested in the enterprise.

2. Language focus: -*ing* clause of Cause and Effect

Task 4: (1) Would you expect to find these sentences in the *problem*, *solution* or *evaluation* part of a text? (2) Rewrite each sentence using a different structure to express the cause and effect relationship – use a variety of structures.

[1] The laser light forms an EM field, thereby slowing the vibration of the atoms.

(S) The laser light forms an EM field, which slows the vibration of the atoms.

[2] When manufacturing output falls, demand for business loans lessens, leaving the banks with a strong lending capacity.

(P) When manufacturing output falls, demand for business loans lessens, and as a result the banks are left with a strong lending capacity.

[3] In fact, sustainable development would require industry to reduce both pollution and resource use, thus creating excellent opportunities for stimulating technical innovation.

(E) In fact, sustainable development would require industry to reduce both pollution and resource use. This would create excellent opportunities for stimulating technical innovation.

[4] With the advent of modern heating systems, the humidity levels inside buildings have fallen, causing antique wooden furniture to shrink and crack.

(P) With the advent of modern heating systems, the humidity levels inside buildings have fallen. When this happens antique wooden furniture can shrink and crack.

[5] Users have access to information, thus supporting smarter purchasing decisions that affect a company's bottom line.

(E) Users have access to information. As a consequence, they can make smarter purchasing decisions that affect a company's bottom line.

2. Language focus: -*ing* clause of Cause and Effect

Task 5: Working in your group, combine the ideas presented below by using an -ing clause. Try and combine all the ideas into single sentences.

[*Q4*]

[1] Technical improvements in resource efficiency can lower demand for resources. This results in lower prices.

Technical improvements in resource efficiency can lower demand for resources, (thus) resulting in / leading to lower prices.

2. Language focus: -*ing* clause of Cause and Effect

Task 5: Working with a partner, combine the ideas presented below by using an -ing clause. Try and combine all the ideas into single sentences.

[2] Sustainable development requires industry to reduce pollution output and resource use; as a result, technical innovation is stimulated.

Sustainable development requires industry to reduce pollution output and resource use, stimulating technical innovation.

2. Language focus: -*ing* clause of Cause and Effect

Task 5: Working with a partner, combine the ideas presented below by using an -ing clause. Try and combine all the ideas into single sentences.

[3] The computer viruses infect executable files; as a consequence, the host computer is damaged when the executable is run.

The computer viruses infect executable files, damaging the host computer when the executable is run.

2. Language focus: -*ing* clause of Cause and Effect

Task 5: Working with a partner, combine the ideas presented below by using an -ing clause. Try and combine all the ideas into single sentences.

[4] The carcinogenic substances are extracted from the soil; hence, the soil is left uncontaminated.

The carcinogenic substances are extracted from the soil, leaving the soil uncontaminated.

2. Language focus: -*ing* clause of Cause and Effect

Task 5: Working with a partner, combine the ideas presented below by using an -ing clause. Try and combine all the ideas into single sentences.

[5] Countries sign treaties on the use of "free resources," such as air and ocean fish. Serious ownership questions **arise**; **therefore**, **it is difficult** to enforce any agreement.

Countries sign treaties on the use of "free resources," such as air and ocean fish, giving rise to serious ownership questions and making it is difficult to enforce any agreement.

2. Language focus: -*ing* clause of Cause and Effect

Task 5: Working with a partner, combine the ideas presented below by using an -ing clause. Try and combine all the ideas into single sentences.

[6] Some interviewees also reported that, miners who earned higher wages offer higher prices for agricultural produce. They said that this makes it difficult for the ordinary people to afford such prices.

Some interviewees also reported that, miners who earned higher wages offer higher prices for agricultural produce, making it difficult for the ordinary people to afford such prices.

2. Language focus: -*ing* clause of Cause and Effect

Task 5: Working with a partner, combine the ideas presented below by using an -ing clause. Try and combine all the ideas into single sentences.

[7] Participants had to successfully select each target before the next target would appear. This ensured that they did not race through the experiment by clicking anywhere just to finish quickly.

Participants had to successfully select each target before the next target would appear, (thus) ensuring that they did not race through the experiment by clicking anywhere just to finish quickly.

2. Language focus: -*ing* clause of Cause and Effect

Task 5: Working with a partner, combine the ideas presented below by using an -ing clause. Try and combine all the ideas into single sentences.

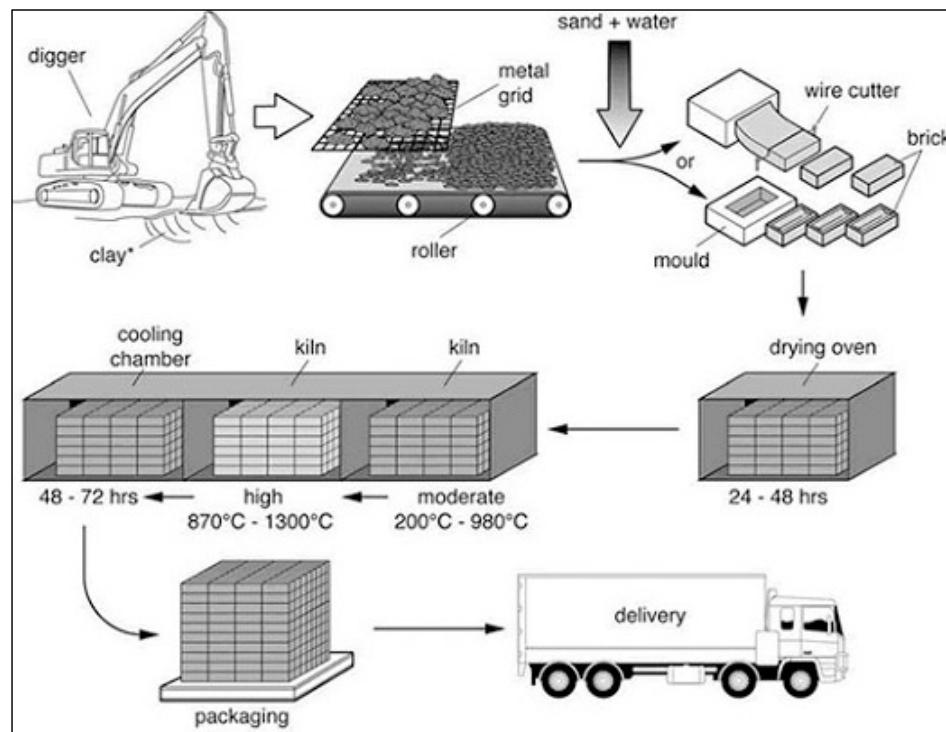
[8] We use a commercial motion tracking system with reflective markers on the hand for developing and evaluating these techniques. **Despite this** our approach provides robust, real time tracking of bare hand postures and movement in 3D space. This finding suggests that bare hand interaction will be a realistic possibility in the near future.

Despite using a commercial motion tracking system with reflective markers on the hand for developing and evaluating these techniques, our approach provides robust, real time tracking of bare hand postures and movement in 3D space, suggesting that bare hand interaction will be a realistic possibility in the near future.

Too long?? Too complex??

Task 6: Write a short process description

The diagram below illustrates the process that is used to manufacture bricks for the building industry. In your group, first verbally describe the process. Then write a process description. You should, summarize the information by selecting and reporting the main features and make comparisons where relevant.



Task 6: Write a short process description

Read the model text and discuss:

1. How does the writer organize the information to make it easy for the reader to follow the steps?
2. Does the writer join any passive constructions in the same sentence?

[1] The diagram shows the manufacturing process of bricks for the construction industry. Overall, there are seven stages in the process, beginning with the sourcing of the clay and culminating in delivery. To begin with, the clay used to make the bricks is dug from the ground. This clay is then placed onto a metal grid, which is used to break it into smaller pieces. A roller moves these pieces to the next part of the process where sand and water are added to form a dough. Once this mixture has reached the required consistency, it is turned into bricks either by placing it in a mould or by passing it through a forming press where it is separated by a wire cutter. Next, the bricks are placed in an oven to dry for 24 – 48 hours. After drying, the bricks pass through a kiln that first heats them at a moderate and then a high temperature (ranging from 200°C to 1300°C). This stage is then followed by a cooling process in a chamber for 2 – 3 days. Finally, the bricks are packed and delivered to their destinations.

Task 6: Write a short process description

Read the model text and discuss:

1. How does the writer organize the information to make it easy for the reader to follow the steps?
2. Does the writer join any passive constructions in the same sentence?

[1] The diagram shows the manufacturing process of bricks for the construction industry. Overall, there are seven stages in the process, beginning with the sourcing of the clay and culminating in delivery. To begin with, the clay used to make the bricks is dug from the ground. This clay is then placed onto a metal grid, which is used to break it into smaller pieces. A roller moves these pieces to the next part of the process where sand and water are added to form a dough. Once this mixture has reached the required consistency, it is turned into bricks either by placing it in a mould or by passing it through a forming press where it is separated by a wire cutter. Next, the bricks are placed in an oven to dry for 24 – 48 hours. After drying, the bricks pass through a kiln that first heats them at a moderate and then a high temperature (ranging from 200°C to 1300°C). This stage is then followed by a cooling process in a chamber for 2 – 3 days. Finally, the bricks are packed and delivered to their destinations.

Task 6: Write a short process description

Read the model text and discuss:

1. How does the writer organize the information to make it easy for the reader to follow the steps?
2. Does the writer join any passive constructions in the same sentence?

[2] The diagram shows the manufacturing process of bricks for the construction industry. Overall, there are seven stages in the process, beginning with the sourcing of the clay and culminating in delivery. To begin with, the clay used to make the bricks is dug from the ground. This clay is then placed onto a metal grid, which is used to break it into smaller pieces. A roller moves these pieces to the next part of the process where sand and water are added to form a dough. Once this mixture has reached the required consistency, it is turned into bricks either by placing it in a mould or by passing it through a forming press where it is separated by a wire cutter. Next, the bricks are placed in an oven to dry for 24 – 48 hours. After drying, the bricks pass through a kiln that first heats them at a moderate and then a high temperature (ranging from 200°C to 1300°C). This stage is then followed by a cooling process in a chamber for 2 – 3 days. Finally, the bricks are packed and delivered to their destinations.

Task 6: Write a short process description

Now read another student's text describing the process of making bricks and offer some feedback.

3. Language focus: *indirect questions*

3. Language focus: Indirect questions

- The purpose of this study was to determine how these variables interact in the service environment.
- This leads to a debate about whether students or society benefit from tertiary education.
- It is not clear whether increased reading speed is due to relegation of the phonemic code or to some other learning mechanism.

3. Language focus: Indirect questions

- A much debated question is whether ...
- Research has yet to show how ...
- It is still not known who ...
- There remain questions about which ...
- It has not been determined how ...
- A number of studies have asked why ...

Indirect questions

Can you fix these?

- X It is unclear what will be the price of oil next year.
- X It is unclear what will the price of oil be next year.
- ✓ It is unclear what the price of oil will be next year.

3. Language focus: Indirect questions

Standard word order

It is unclear how effective this is.

Subject + verb: [s] [v]

No inversion, as in a direct question.

End with a period rather than a question mark.

Direct question: What time is it?

[v] [s]

Indirect question: He asked what time it is.

[s] [v]

3. Language focus: Indirect questions

He asked me ...

How long have you lived in Tsukuba?

When are you going to finish your PhD?

Are you going to finish your assignment on time?

Do you get on well with your supervisor?

3. Language focus: Indirect questions

He asked me ...

How long have you lived in Tsukuba?

He asked me how long I have lived in Tsukuba.

When are you going to finish your PhD?

Are you going to finish your assignment on time?

Do you get on well with your supervisor?

3. Language focus: Indirect questions

He asked me ...

How long have you lived in Tsukuba?

He asked me how long I have lived in Tsukuba.

When are you going to finish your PhD?

He asked me when I am going to finish my PhD.

Are you going to finish your assignment on time?

Do you get on well with your supervisor?

3. Language focus: Indirect questions

He asked me ...

How long have you lived in Tsukuba?

He asked me how long I have lived in Tsukuba.

When are you going to finish your PhD?

He asked me when I am going to finish my PhD.

Are you going to finish your assignment on time?

He asked me if/whether I am going to finish my assignment ...

Do you get on well with your supervisor?

3. Language focus: Indirect questions

He asked me ...

How long have you lived in Tsukuba?

He asked me how long I have lived in Tsukuba.

When are you going to finish your PhD?

He asked me when I am going to finish my PhD.

Are you going to finish your assignment on time?

He asked me if/whether I am going to finish my assignment ...

Do you get on well with your supervisor?

He asked whether I get on well with my supervisor.

3. Language focus: Indirect questions

Could you tell me ...

I was wondering ...

Do you know ...

- Is there a word limit for the assignment?
- Is it OK if I'm absent from class next week?
- Are there any good textbook for learning vocabulary?
- Do you have time to look over my paper?
- Can I audit this class?

3. Language focus: Indirect questions

Task 7: The verb to be is missing from the following statements. Insert it in the correct position for each. As you do so, note the typical language of indirect questions.

1. The question remains whether it possible to develop effective earthquake warning systems.
2. There remain questions about whether this policy effective in rural areas.
3. We need to know what precautions being taken to reduce the spread of disease.
4. There is some question as to whether the acquired skill then transferred to other contexts.
5. It has not been determined how these policies likely to affect small businesses.
6. It might also be of interest to investigate to what extent persistence a major factor in graduate student success.
7. Another issue raised by this study is whether and to what extent the economy subject to political developments elsewhere.
8. This research investigated whether time money and found that $V= \{W[100-t]/100\}/C$, where V is the value of an hour, W is a person's hourly wage, t is the tax rate, and C is the cost of living.

3. Language focus: Indirect questions

Task 7: The verb to be is missing from the following statements. Insert it in the correct position for each. As you do so, note the typical language of indirect questions.

1. The question remains whether it **is** possible to develop effective earthquake warning systems.
2. There remain questions about whether this policy effective in rural areas.
3. We need to know what precautions being taken to reduce the spread of disease.
4. There is some question as to whether the acquired skill then transferred to other contexts.
5. It has not been determined how these policies likely to affect small businesses.
6. It might also be of interest to investigate to what extent persistence a major factor in graduate student success.
7. Another issue raised by this study is whether and to what extent the economy subject to political developments elsewhere.
8. This research investigated whether time money and found that $V= \{W[100-t]/100\}/C$, where V is the value of an hour, W is a person's hourly wage, t is the tax rate, and C is the cost of living.

3. Language focus: Indirect questions

Task 7: The verb to be is missing from the following statements. Insert it in the correct position for each. As you do so, note the typical language of indirect questions.

1. The question remains whether it **is** possible to develop effective earthquake warning systems.
2. There remain questions about whether this policy **is** effective in rural areas.
3. We need to know what precautions **are** being taken to reduce the spread of disease.
4. There is some question as to whether the acquired skill **can then be** transferred to other contexts.
5. It has not been determined how these policies **are** likely to affect small businesses.
6. It might also be of interest to investigate to what extent persistence **is** a major factor in graduate student success.
7. Another issue raised by this study is whether and to what extent the economy **is** subject to political developments elsewhere.
8. This research investigated whether time **is** money and found that $V = \{W[100-t]/100\}/C$, where V is the value of an hour, W is a person's hourly wage, t is the tax rate, and C is the cost of living.

3. Language focus: Indirect questions

Task 8: Read the following short problem-solution texts. What differences do you detect between Text 1 and Text 2? (Think of such matters as length, audience, amount of background knowledge assumed, amount of detail in each part of the problem-solution text, use of examples, etc.) Which text do you prefer? Why?

Text 1: All people need to eat, and they eat a variety of foods – rice, fruits, vegetables, and meat. However, the problem is that sometimes people can become ill after eating spoiled or contaminated food. Each year millions of people become sick or even die. Meat can be particularly dangerous because it is difficult to determine whether it has been contaminated by simply looking at it. Fruit and vegetables at least have obvious signs of spoilage. One solution to this problem is to slow the process of spoilage by irradiation. Irradiated food lasts longer, tastes better, and in some cases may be cheaper. Since irradiated foods are completely safe, consumers now need to be convinced to buy them.

Text 2: Some health problems and even death can result from eating either spoiled fruits and vegetables or contaminated meat. Although in many countries strict governmental guidelines must be followed by meat producers, experts estimate that in the United States, for example, more than half the poultry sold to consumers is contaminated with *salmonella*. Some pork may harbor *trichinella*. For the last three decades, much research in food science has focused on whether it might be possible to eliminate potentially harmful bacteria before meat is sent to market. Many possibilities have been investigated, but one of the most promising is irradiation. Irradiation is a process that kills many harmful bacteria that cause spoilage, without affecting the food itself. As a result, irradiated food does not spoil as quickly as unirradiated food and also tastes better for a longer period of time. Food safety specialists agree that if irradiation were used, there would be a dramatic decrease in the rate of foodborne illnesses and deaths from eating contaminated food. Food costs might even be lower because the costs of spoilage would be reduced. While irradiation is being used on a relatively small scale, there is some public concern over its safety. It remains to be seen whether this revolutionary process can be implemented on a wide-scale basis.

Task 8: Read the following short problem-solution texts. What differences do you detect between Text 1 and Text 2? (Think of such matters as length, audience, amount of background knowledge assumed, amount of detail in each part of the problem-solution text, use of examples, etc.) Which text do you prefer? Why?

Text 1: All people need to eat, and they eat a variety of foods – rice, fruits, vegetables, and meat. However, the problem is that sometimes people can become ill after eating spoiled or contaminated food. Each year millions of people become sick or even die. Meat can be particularly dangerous because it is difficult to determine whether it has been contaminated by simply looking at it. Fruit and vegetables at least have obvious signs of spoilage. One solution to this problem is to slow the process of spoilage by irradiation. Irradiated food lasts longer, tastes better, and in some cases may be cheaper. Since irradiated foods are completely safe, consumers now need to be convinced to buy them.

Summary

- Problem → Solution → Evaluation
- A logical / reader friendly way to structure information
- Passive voice
- Cause and effect
- Indirect questions
- Describing processes
- Assessed task 2