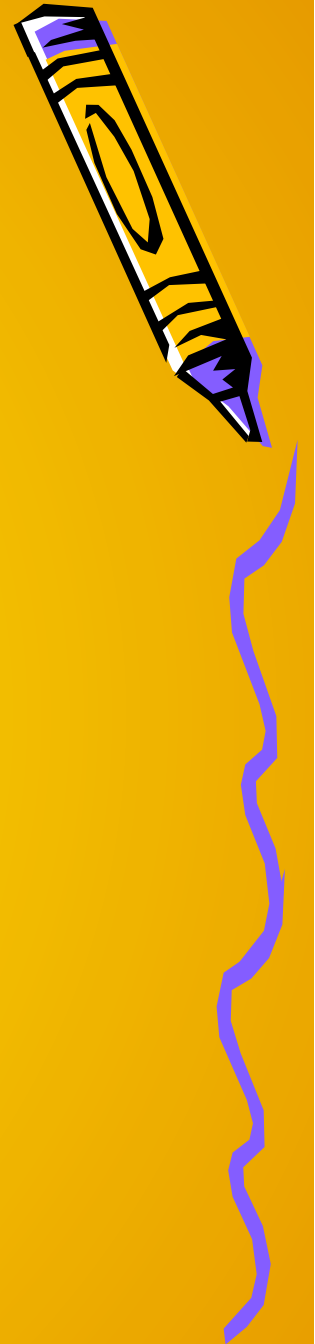


# Scientific Writing in English

## — 英语科研论文写作 —



Lecture 17 Monday 16.11.2015  
(8.30-10.10pm/13.30-15.10pm)

Scientific Writing in English  
— 英语科研论文写作 —



Volunteers for Note Taking  
(Chinese/English)

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# Scientific Writing in English

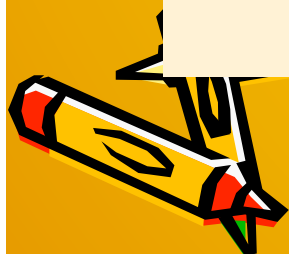
## — 英语科研论文写作 —



### OVERVIEW - Module 2

#### Unit 3: Problem, Process, Solution

1. General Structure
2. Language Focus: Mid-position Adverbs
3. Procedures and Processes = Methods Part
- 4. Language Focus: Verbs and Agents in the Solution**
- 5. Language Focus: -ing Clauses of Result**
- 6. Language Focus: Indirect Questions**



# Scientific Writing in English

## — 英语科研论文写作 —



### TASK 28B

Improve the flow of ideas for 4 process descriptions

Possible Answers



### Oil spill cleanup (Sector 1)

The oil is skimmed from the surface using a boom. The oil is pumped into a tank for recycling.

### Wine making (Sector 2)

The grapes are harvested. The grapes are crushed to release the pulp and seeds. The grapes are fermented for three weeks.

### Tempering glass (Sector 3)

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

### Coronary bypass surgery (Sector 4)

A vessel is taken from the leg. The vessel is grafted to the aorta and the coronary artery beyond the narrowed area. The vessel allows blood to flow to the heart muscle.

## Oil spill cleanup (Sector 1)

The oil is skimmed from the surface using a boom. The oil is pumped into a tank for recycling.

Possible answers:

First, the oil is skimmed from the surface using a boom. Then, the oil is pumped into a tank for recycling.

The oil is first skimmed from the surface using a boom, and then pumped into a tank for recycling.



## Wine making (Sector 2)

The grapes are harvested. The grapes are crushed to release the pulp and seeds. The grapes are fermented for three weeks.

Possible answers:

First, the grapes are harvested and then crushed to release the pulp and seeds. Finally, the grapes are fermented for three weeks.

The grapes are first harvested, then they are crushed to release the pulp and seeds. The crushed grapes are then fermented for three weeks.

The grapes are harvested and crushed to release the pulp and seeds, before being fermented for three weeks.



## Tempering glass (Sector 3)

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

Possible Answers:

Initially, the glass is cut to size and inspected for any imperfections. Then, the glass is heated to over 600°C before being cooled in a step known as quenching.

The glass is first cut to size, then it is inspected for any imperfections. Next, the glass is heated to over 600°C. Finally, the glass is cooled in a step known as quenching.



## Coronary bypass surgery (Sector 4)

A vessel is taken from the leg. The vessel is grafted to the aorta and the coronary artery beyond the narrowed area. The vessel allows blood to flow to the heart muscle.

Possible answers:

Initially, a vessel is taken from the leg. Subsequently, the vessel is grafted to the aorta and the coronary artery beyond the narrowed area, allowing blood to flow to the heart muscle.

First, a vessel is taken from the leg and grafted to both the aorta and the coronary artery beyond the narrowed area. As a consequence, the grafted vessel allows blood to flow to the heart muscle.

After a vessel is taken from the leg, it is grafted to the aorta and the coronary artery beyond the narrowed area; thus allowing blood to flow to the heart muscle.

# Scientific Writing in English

## — 英语科研论文写作 —



Language Focus: -ing Clauses of Result

TASK 30

**Answers**





1. The researcher supposedly manipulated the data. Creating an apparent effect where none existed.


2. The researcher supposedly manipulated the data, creating an apparent effect where none existed.

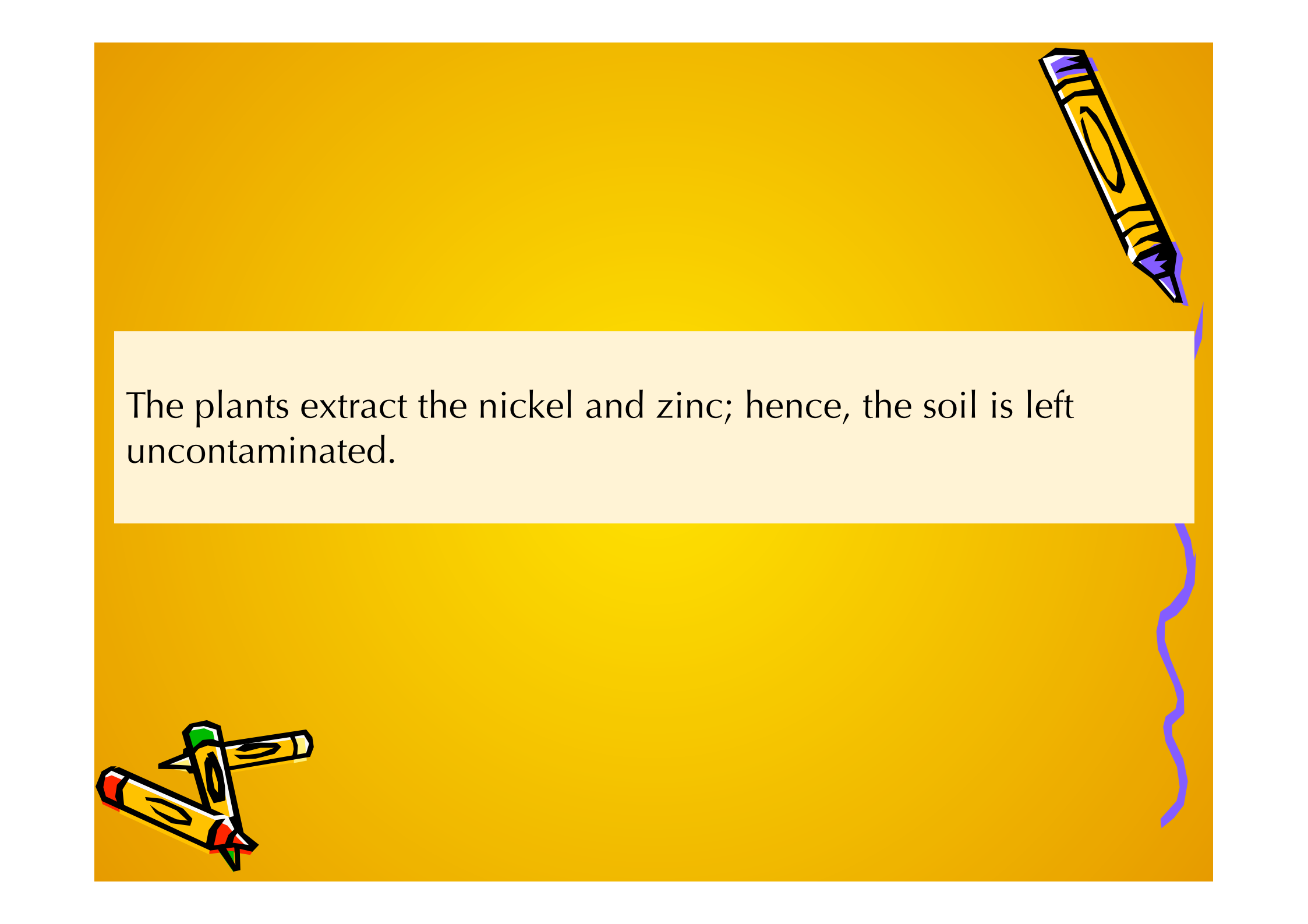
3. The researcher supposedly manipulated the data. As a result, creating an apparent effect where none existed.






## Student Answers:

1. The computer viruses infect executable files, damaging the host computer when the executable is run.
  2. The computer viruses infect executable files, causing the host computer damaged when the executable is run.
  3. The computer viruses infect executable files, thus damaging the host computer when the executable is run.
  4. The computer viruses infect executable files; as a consequence, damaging the host computer when the executable is run.
- 

The background is a solid yellow color. In the center, there is a white rectangular box with a thin black border containing text. In the top right corner, there is a cartoon pencil with a yellow body, black bands, and a purple eraser and tip. In the bottom left corner, there are three cartoon pencils: one yellow with a red eraser and tip, one green with a green eraser and tip, and one yellow with a black eraser and tip. A wavy purple line runs vertically down the right side of the page.

The plants extract the nickel and zinc; hence, the soil is left uncontaminated.



## Students Answers:

The plants extract the nickel and

... zinc; hence, uncontaminating the soil.

... zinc, leaving the soil uncontaminated.

... zinc, uncontaminating the soil left.

... zinc; hence, the soil is left uncontaminated.

... zinc, decontaminating the soil.


... zinc; hence, uncontaminating soil is left.

... zinc, leaving the soil uncontaminated.

... zinc; hence, decontaminating the soil.

... zinc; uncontaminating the left soil.

... zinc; hence the soil is left uncontaminating.





## Students Answers:

The plants extract the nickel and

... zinc; hence, uncontaminating the soil.

... zinc, leaving the soil uncontaminated.

... zinc, uncontaminating the soil left.

... zinc; hence, the soil is left uncontaminated.

**... zinc, decontaminating the soil.**

... zinc; hence, uncontaminating soil is left.

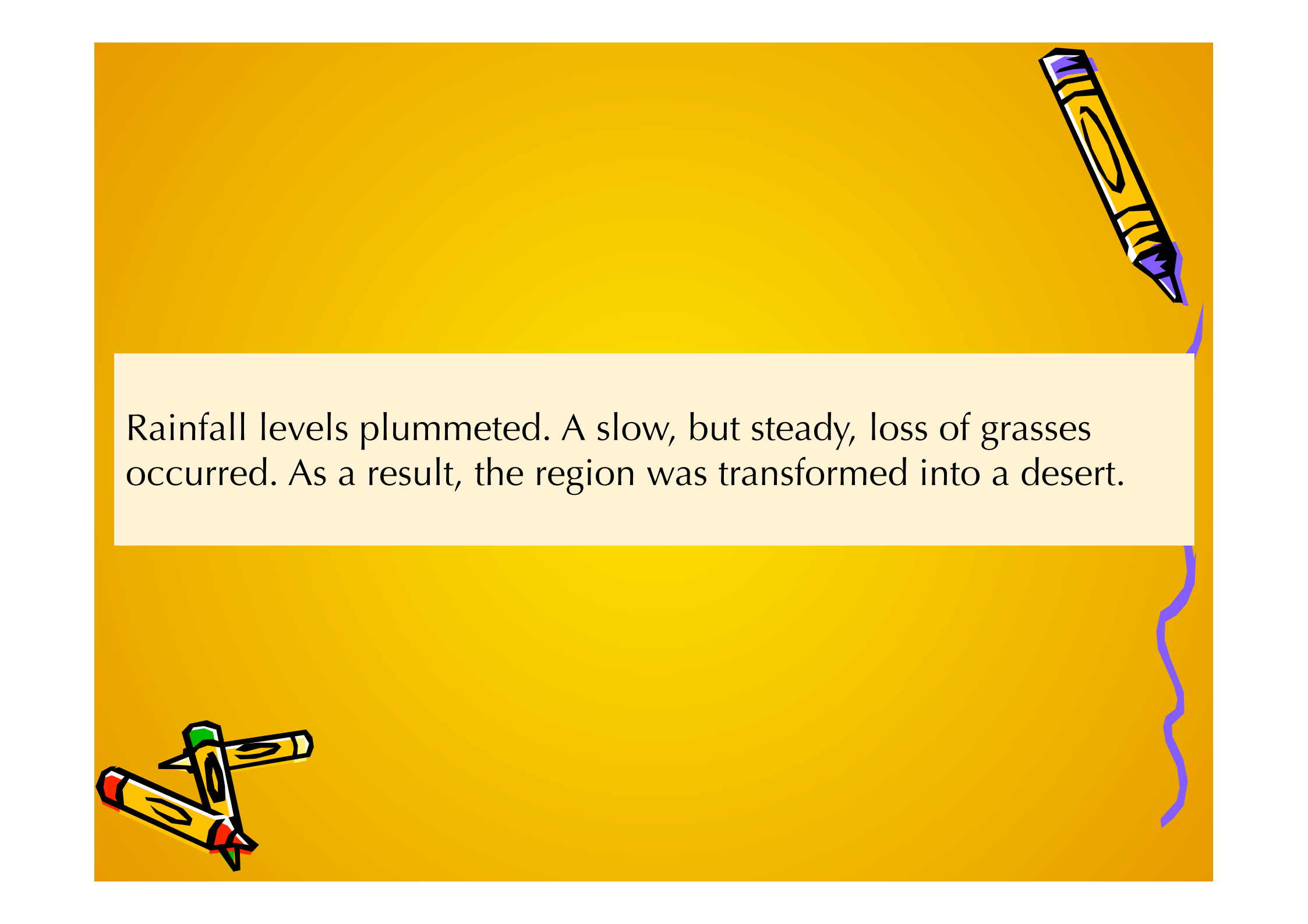
... zinc, leaving the soil uncontaminated.

... zinc; hence, decontaminating the soil.

... zinc; uncontaminating the left soil.

... zinc; hence the soil is left uncontaminating.



The background is a solid yellow color. In the center, there is a white rectangular box with a thin black border containing text. In the top right corner, there is a cartoon pencil with a yellow body, black bands, and a purple eraser. In the bottom left corner, there are three cartoon pencils: one yellow with a red eraser, one green with a green eraser, and one yellow with a red eraser, all overlapping. On the right side, there is a vertical, wavy purple line.

Rainfall levels plummeted. A slow, but steady, loss of grasses occurred. As a result, the region was transformed into a desert.





Students Answers:

Rainfall levels plummeted. **but** steady, loss of grasses occurred, thus transforming the region into a desert



Rainfall levels plummeted, and then a slow, but steady, loss of grasses occurred, transforming the region into a desert.

Rainfall levels plummeted. Then a slow, but steady, loss of grasses occurred, transforming the region into a desert.

Rainfall levels plummeted. A slow, but steady, loss of grasses occurred, transforming the region into a desert.

Rainfall levels plummeted, occurring a slow, but steady, loss of grasses and transforming the region into a desert.

Rainfall levels plummeted, and a slow but steady loss of grasses occurred, which transformed the region into a desert.

Rainfall levels plummeted. but steady, loss of grasses occurred, thus transforming the region into a desert.

Rainfall levels plummeted. A slow, but steady, loss of grasses occurred resulting the region was transformed into a desert.



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, **raising** serious ownership questions; therefore, it is difficult to enforce any agreement.

Countries sign treaties on the use of “free resources” such as air and ocean fish, **raising** serious ownership questions, (hence) **making** it difficult to enforce any agreement.



# Scientific Writing in English

## — 英语科研论文写作 —



### OVERVIEW - Module 2

#### Unit 3: Problem, Process, Solution

1. General Structure
2. Language Focus: Mid-position Adverbs
3. Procedures and Processes = Methods Part
4. Language Focus: Verbs and Agents in the Solution
5. Language Focus: -ing Clauses of Result
6. **Language Focus: Indirect Questions**



# Scientific Writing in English

## — 英语科研论文写作 —



### Language Focus: Indirect Questions

\* how to formulate questions (problems) and evaluate answers (evaluations)



# Scientific Writing in English

## — 英语科研论文写作 —



### Language Focus: Indirect Questions

#### Example 1

It is not clear, however, **whether** such high percentages for English provide an accurate picture of languages chosen for publication by researchers around the world.



# Scientific Writing in English

## — 英语科研论文写作 —



### Language Focus: Indirect Questions

#### Example 2

Until such time, nonnative speakers of English will remain uncertain about **how** effective their publications are in their own languages.

-> both indirect questions





# Scientific Writing in English

## — 英语科研论文写作 —



### Language Focus: Indirect Questions

Direct question:

What time is it?

Does such high percentage  
provide an accurate picture?

Indirect question:

They asked what time it is/was.

They asked whether such high  
percentage  
provides an accurate picture.



# Scientific Writing in English

## — 英语科研论文写作 —



### Language Focus: Indirect Questions

Problem: NOT to invert subject and verb

-> Indirect questions follow the standard word order  
(subject->verb)

Example

What **will** the price of oil **be** next year? (Direct question)



# Scientific Writing in English

## — 英语科研论文写作 —



### Language Focus: Indirect Questions

Problem: NOT to invert subject and verb

Example

What **will** the price of oil **be** next year? (Direct question)

1. It is unclear what **will be** the price of oil next year.
2. It is unclear what **will** the price of oil **be** next year.



# Scientific Writing in English

## — 英语科研论文写作 —



### Language Focus: Indirect Questions

Problem: NOT to invert subject and verb

Correct:

What **will** the price of oil **be** next year? (Direct question)

->

It is unclear what the price of oil **will be** next year.



Answer: The price of oil **will be**...



# Scientific Writing in English

## — 英语科研论文写作 —



### TASK 32

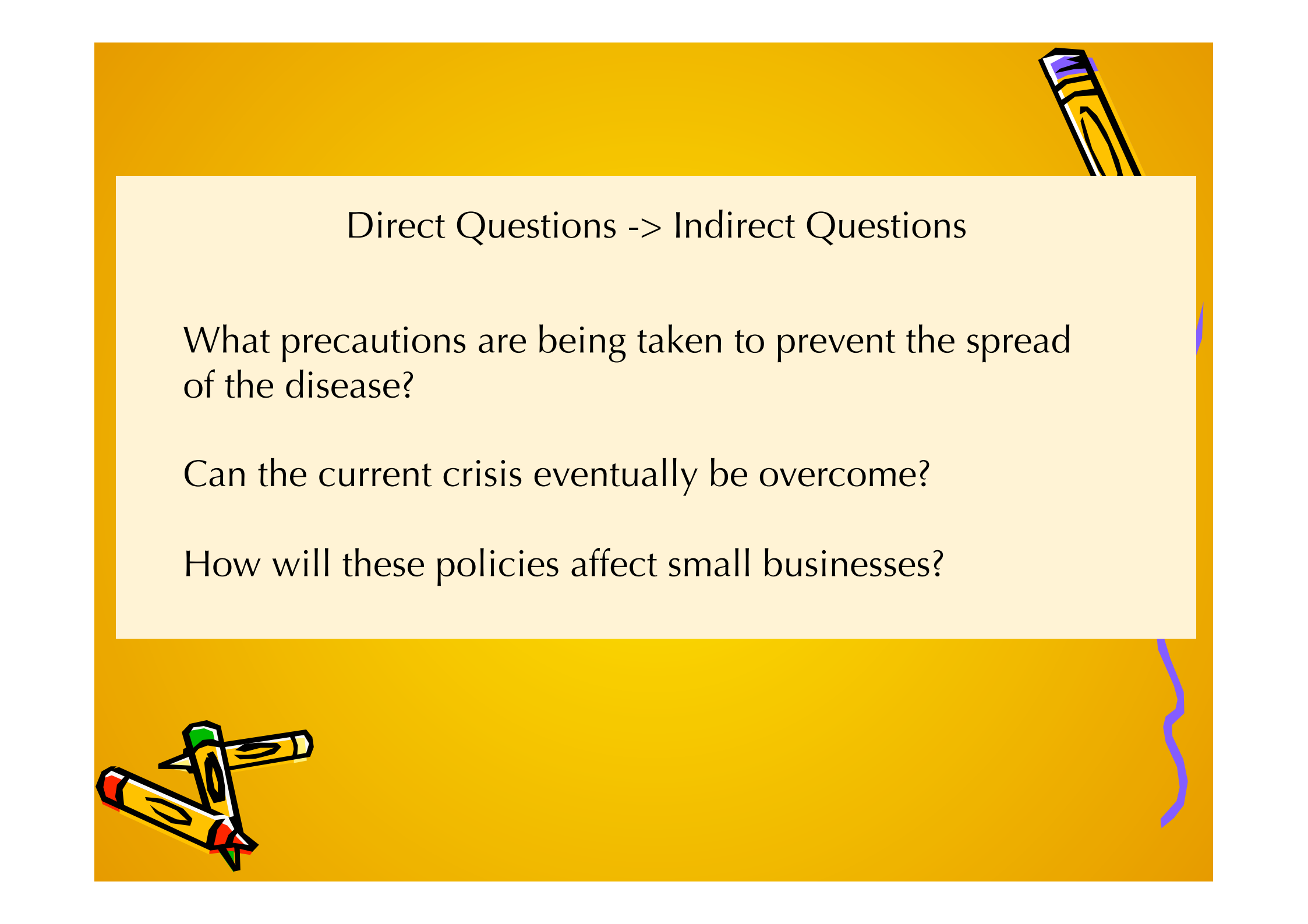
Direct Questions -> Indirect Questions

(Group work)

15 min

Convert **direct** questions into **indirect** questions, paying attention to the use of passive versus active voice. Also, ensure the agents are clear whenever required.





## Direct Questions -> Indirect Questions

What precautions are being taken to prevent the spread of the disease?

Can the current crisis eventually be overcome?

How will these policies affect small businesses?

# Scientific Writing in English

## — 英语科研论文写作 —

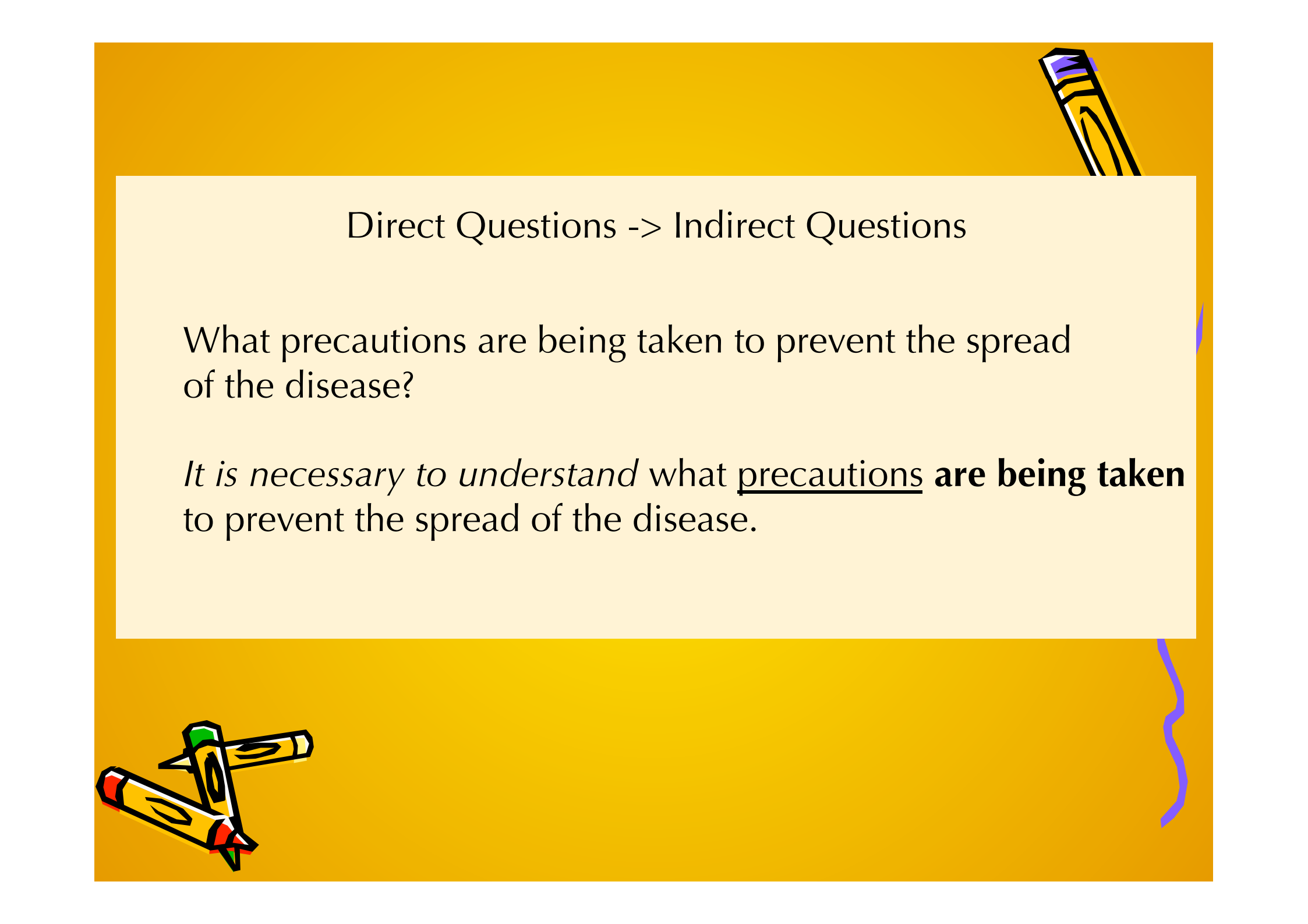


### TASK 32

Direct Questions -> Indirect Questions

Possible Answers







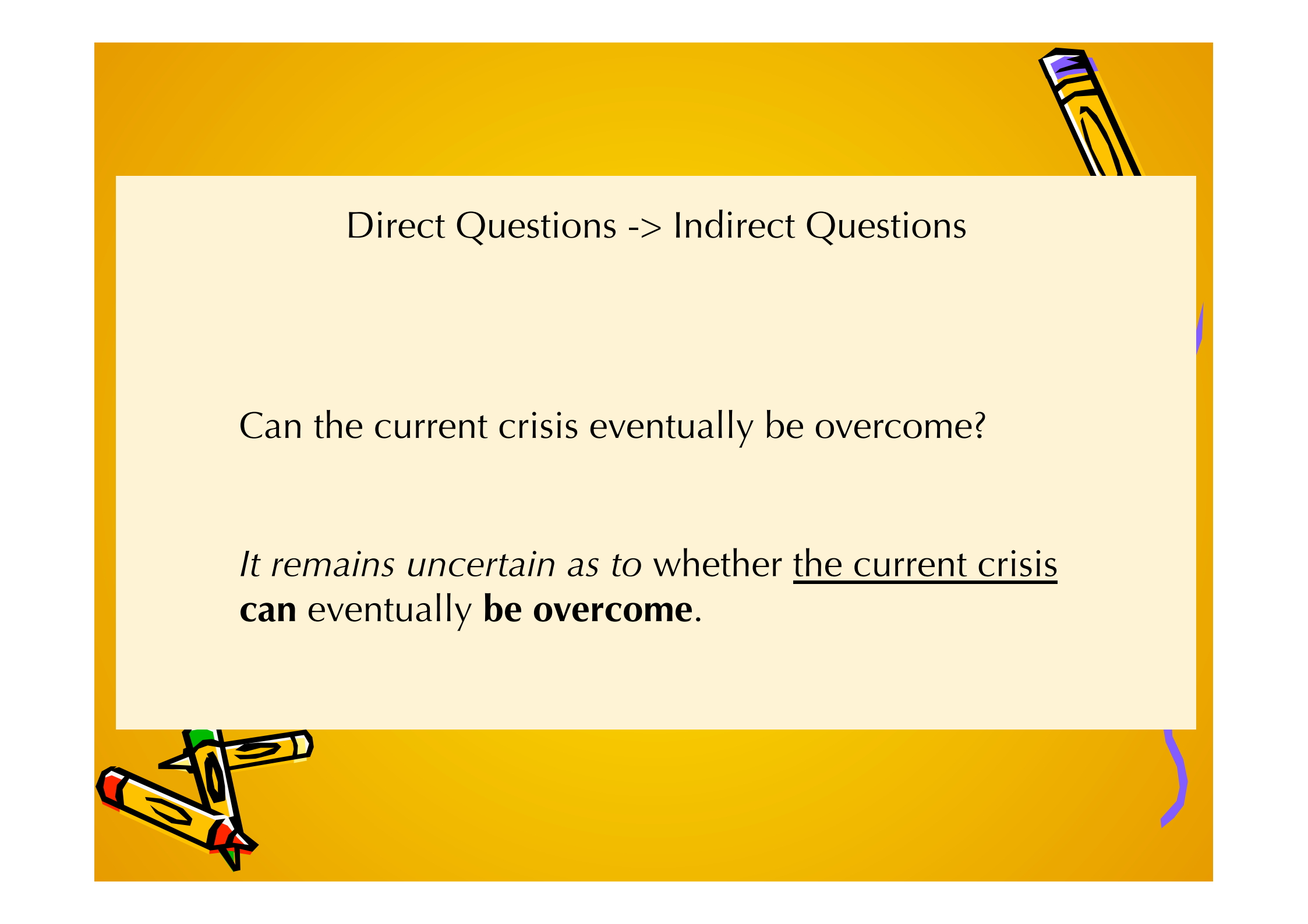
## Direct Questions -> Indirect Questions

What precautions are being taken to prevent the spread of the disease?

*It is necessary to understand what precautions **are being taken** to prevent the spread of the disease.*



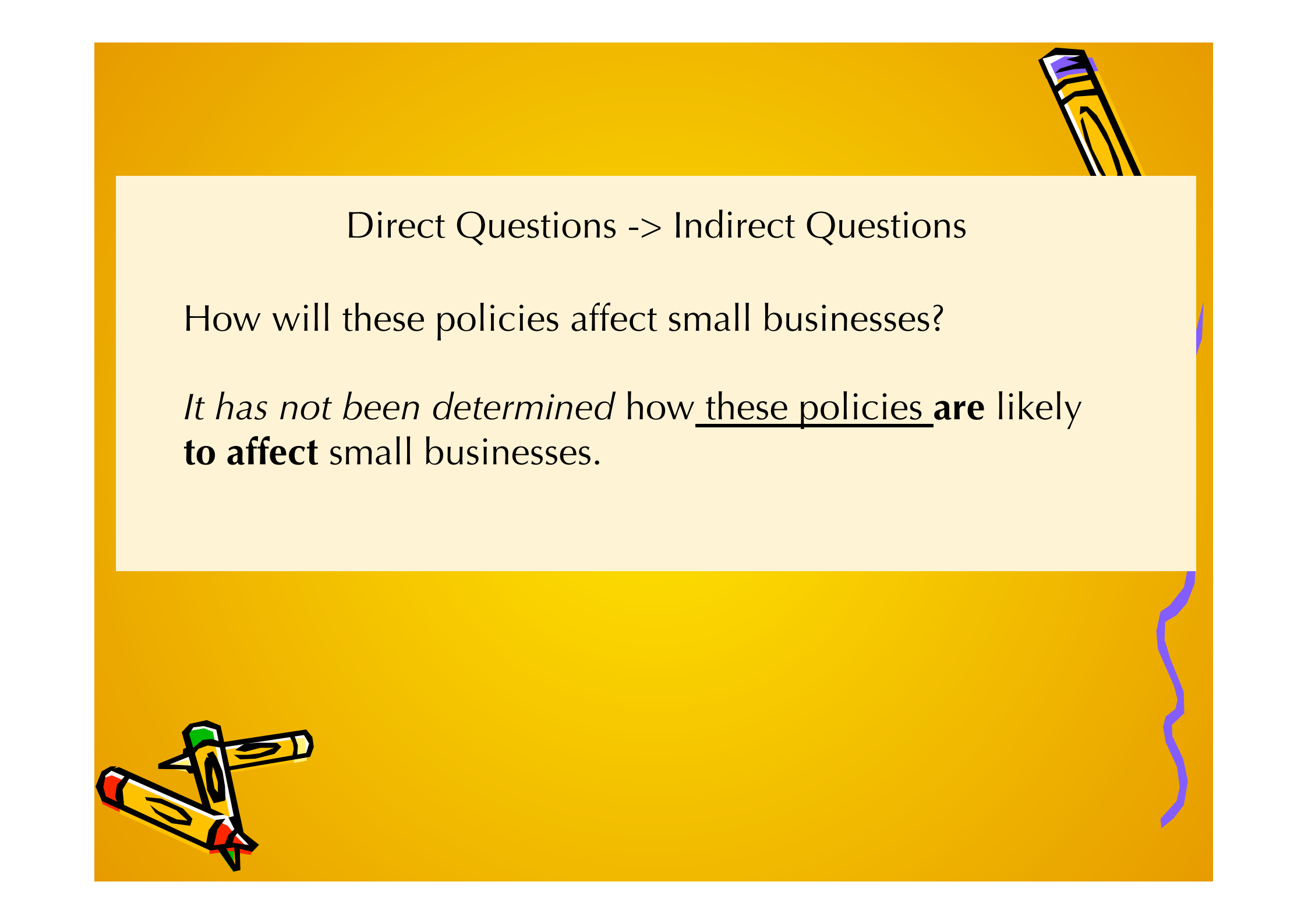




Direct Questions -> Indirect Questions

Can the current crisis eventually be overcome?

*It remains uncertain as to whether the current crisis  
**can** eventually **be overcome**.*



Direct Questions -> Indirect Questions

How will these policies affect small businesses?

*It has not been determined* how these policies **are** likely **to affect** small businesses.

# Scientific Writing in English

## — 英语科研论文写作 —



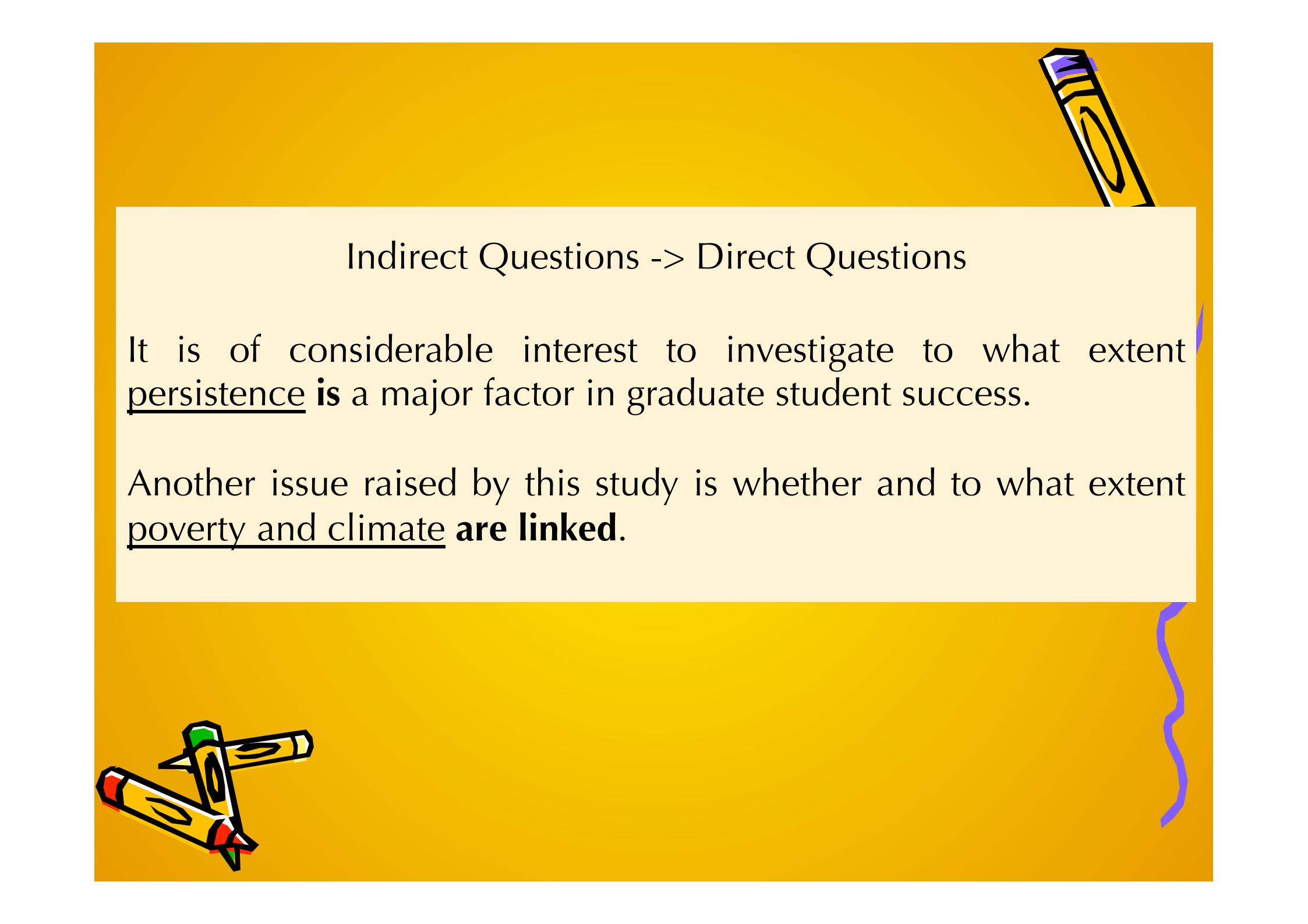
### TASK 32

Indirect Questions -> Direct Questions

(Group work)

10 min






## Indirect Questions -> Direct Questions

It is of considerable interest to investigate to what extent persistence **is** a major factor in graduate student success.

Another issue raised by this study is whether and to what extent poverty and climate **are linked**.




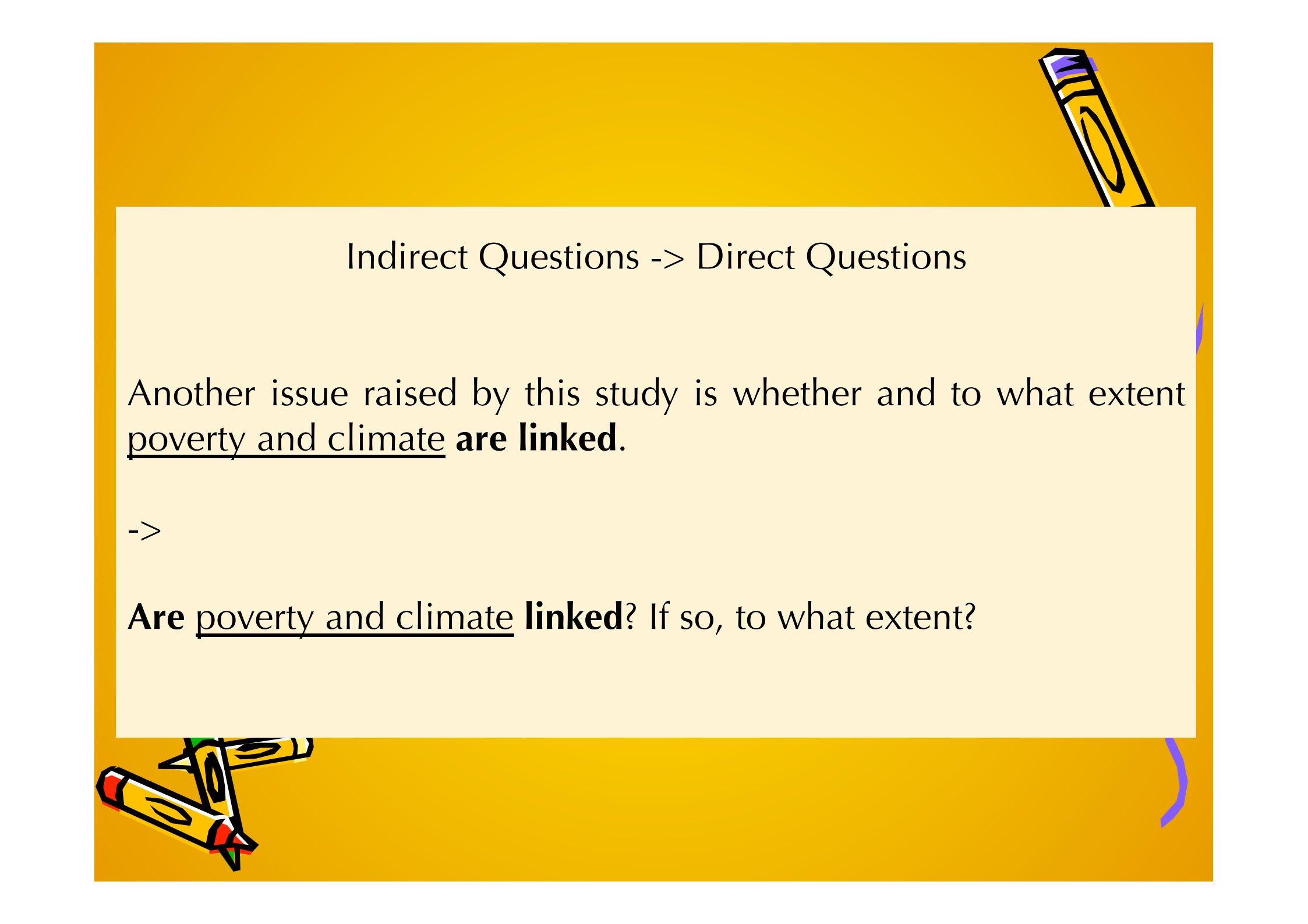
## Indirect Questions -> Direct Questions

It is of considerable interest to investigate to what extent persistence **is** a major factor in graduate student success.

->

To what extent **is** persistence a major factor in graduate student success?





## Indirect Questions -> Direct Questions

Another issue raised by this study is whether and to what extent poverty and climate **are linked**.

->

**Are poverty and climate **linked**?** If so, to what extent?

# Scientific Writing in English

## — 英语科研论文写作 —



### Language Focus: Indirect Questions

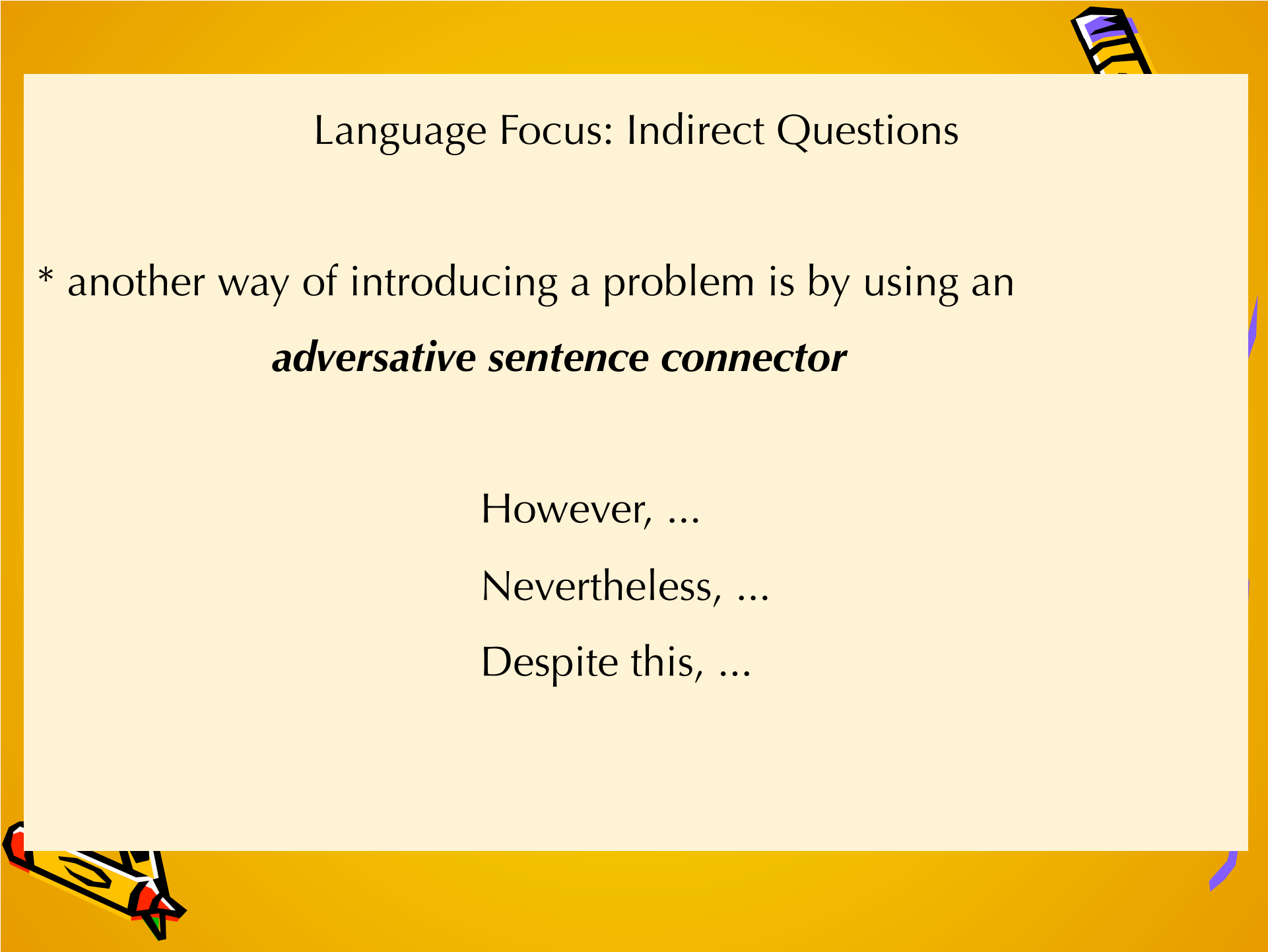
\* number of functions

1) explaining purpose

A questionnaire was distributed **in order to determine whether...**

2) used to 'problematize' issues, cases, phenomena, statements





## Language Focus: Indirect Questions


\* another way of introducing a problem is by using an  
***adversative sentence connector***

However, ...

Nevertheless, ...

Despite this, ...





## Language Focus: Indirect Questions

### ***adversative sentence connector***

**However**, this system/process/idea has various problems


**Nevertheless**, few solutions have been found to...

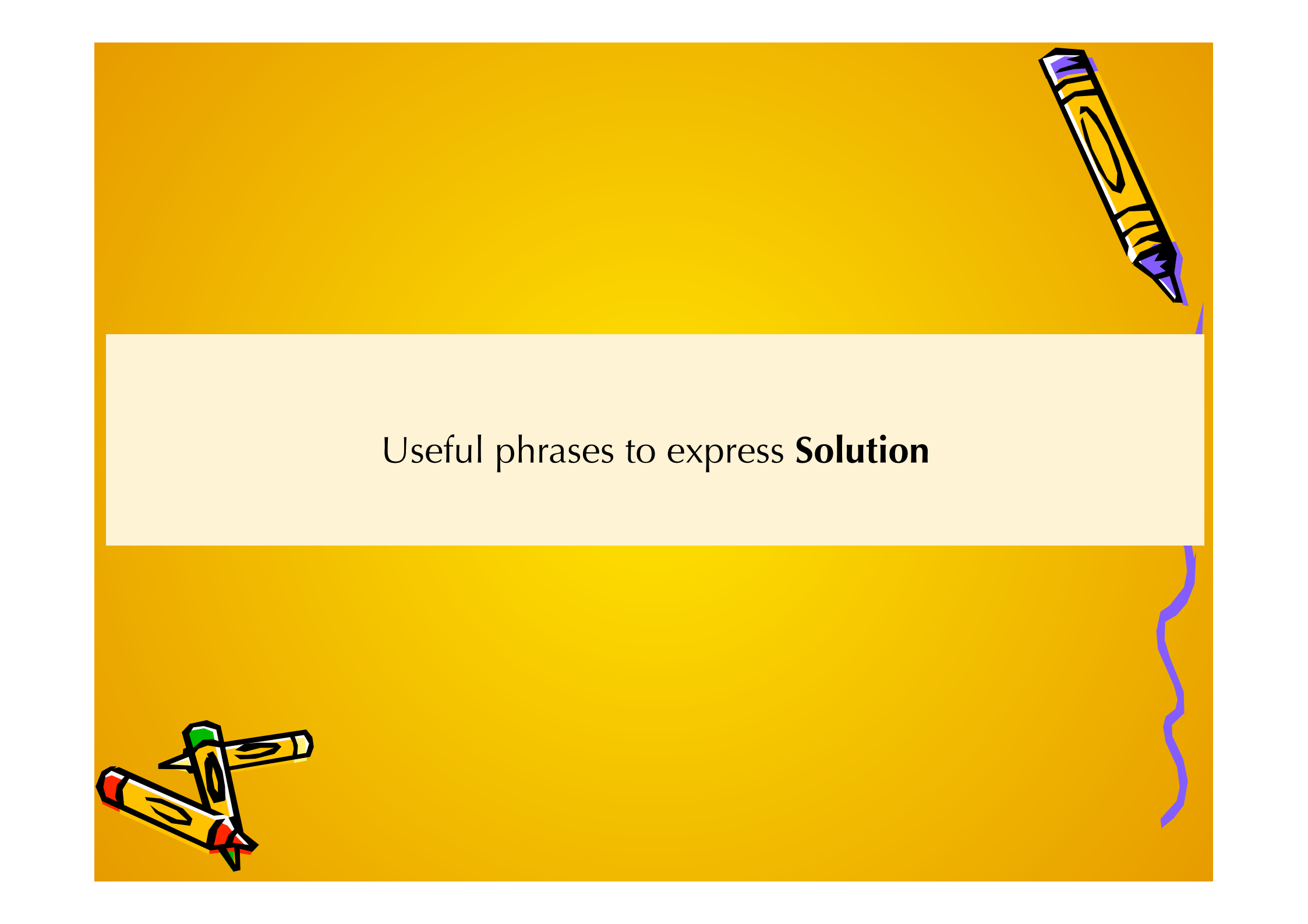
**Despite this**, little progress has been made in...

**Nevertheless**, the problem remains as to how...

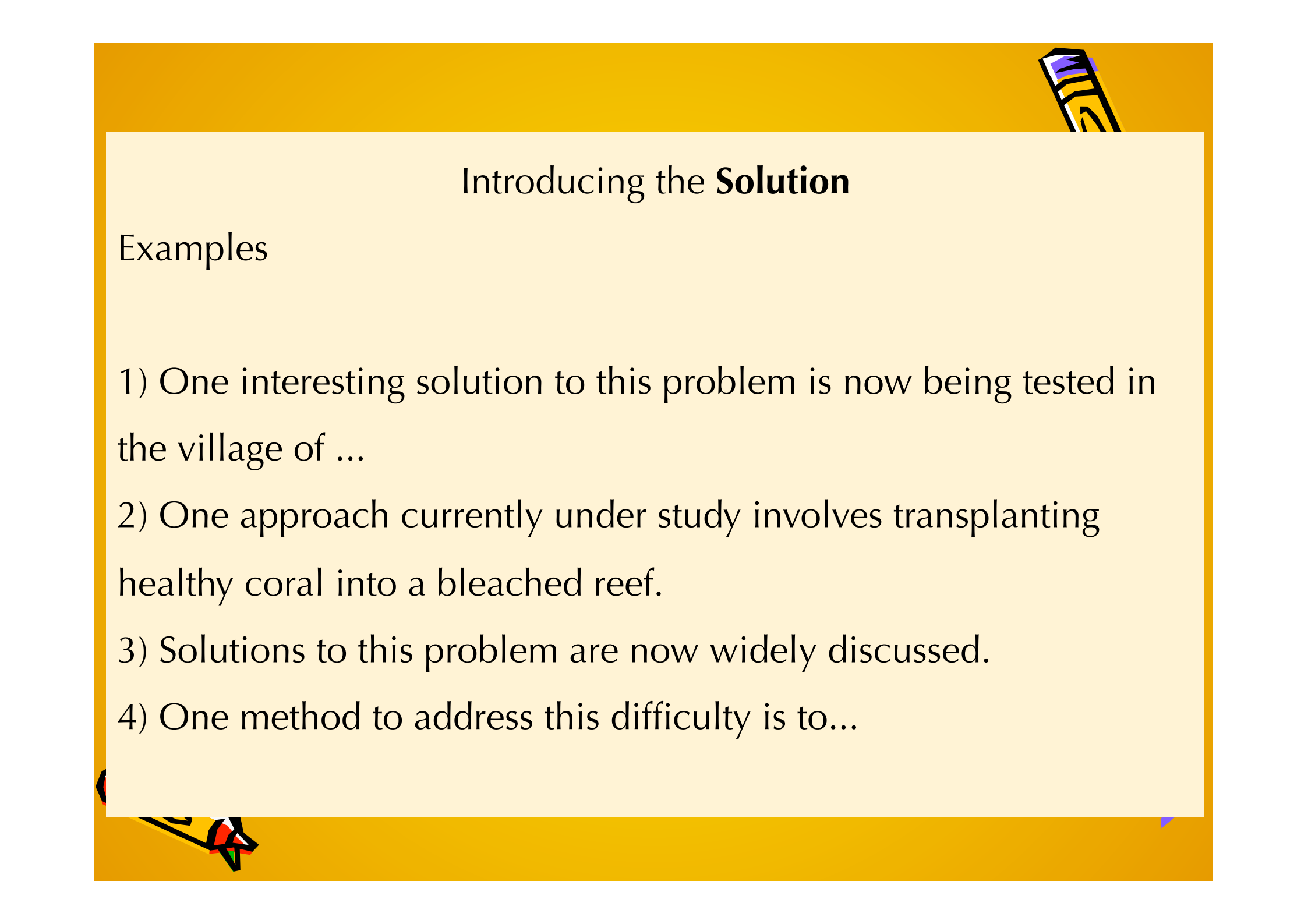
**However**, there remains the issue of reliability.

-> somewhat negative






Useful phrases to express **Solution**



## Introducing the **Solution**

### Examples

- 1) One interesting solution to this problem is now being tested in the village of ...
  - 2) One approach currently under study involves transplanting healthy coral into a bleached reef.
  - 3) Solutions to this problem are now widely discussed.
  - 4) One method to address this difficulty is to...
- 



## Introducing the **Solution**

### Examples

- 5) There are two possible ways of handling this problem. The first...The second...
- 6) Several options are available to address this obstacle. However, the best one appears to be...
- 7) A radically different design/model is required to overcome this limitation.
- 8) Recently, researchers have made significant progress in overcoming this difficulty by...

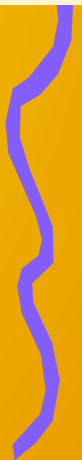




## Introducing the **Solution**

Common skeletal phrase:

Recently, researchers have made significant progress in overcoming this difficulty by ... (*introducing a simple fog harvesting system*).





## Introducing the **Solution**

Common skeletal phrase:

\* use Google Scholar to search for phrases and correct verbs

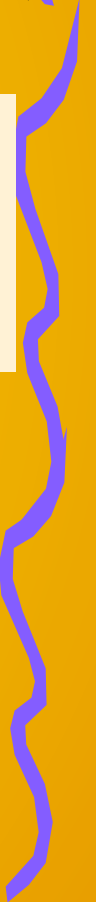
"approach to \* this problem "

(\* = wild card, can appear in the beginning, middle, end)

Possible search outcomes: *solve, overcome, tackle, address*



# Summary





## Results Section of an original article

**In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the TCED (25), to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the TREp and Octamer-UPS sequences to canonical sites in the context of the  $\text{IL-2}$  enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic mobility shift assays (EMSAs) and tested the activity of corresponding CAT constructs in transient transfection assays. Furthermore, we constructed  $\text{IL-2}$  enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.**







## Results Section of an original article

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the  $\text{IL-2}$  enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.





## AIM?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the  $\text{IL-2}$  enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.



## Indirect Question?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the  $\text{IL-2}$  enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.



## Cause and Effect?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the Il-2 enhancer (Fig. 1A). Then we compared the protein binding of 'converted' sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the 'perfect' mutations, the activity of which was tested in the same way.

-> X leads to Z





## Active Voice?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the Il-2 enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.



## Active Voice?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the Il-2 enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.



## Linked verbs?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the Il-2 enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.



## Passive Voice?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the  $\text{IL-2}$  enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.





## -ing verb forms?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the  $\text{IL-2}$  enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.



## Participles (->adjective)?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the  $\text{IL-2}$  enhancer (Fig. 1A). Then we compared the protein binding of 'converted' sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the 'perfect' mutations, the activity of which was tested in the same way.



## Time adverbials?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the  $\text{IL-2}$  enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.



## Linking words?


In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the  $\text{IL-2}$  enhancer (Fig. 1A). Then we compared the protein binding of ‘converted’ sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the ‘perfect’ mutations, the activity of which was tested in the same way.





Can passive and active voice appear in same sentence?

In order to investigate whether the conversion of weak binding sites for ubiquitous factors leads, as reported for the XYZ, to an increase of enhancer activity in T cells and its activity in non-T cells, we converted the NNN sequences to canonical sites in the context of the  $\Pi$ -2 enhancer (Fig. 1A). Then we compared the protein binding of 'converted' sites with that of well-characterized, canonical sites in electrophoretic ABC assays and tested the activity of corresponding XXX constructs in ZZZ assays. Furthermore, we constructed Y enhancers carrying two or three of the 'perfect' mutations, the activity of which was tested in the same way.



Can passive and active voice appear in same paragraph?

The conversion of binding sites had a dual effect on the activity of  $\text{IL-2}$  enhancer in El4 cells. As shown in Fig. 3, the presence of canonical binding sites within the enhancer resulted in an increase of its constitutive and inducible activity. Approximately the same effect was observed for enhancers carrying two or all three mutations. The strong binding sites also induced activity of the enhancer in B lymphocytes and in non-lymphoid cells, after transfection of  $\text{IL-2}$  enhancer CAT constructs into 70Z pre-B cells, A20J B cells, L cells and human HeLa cells. Although in the two B cell lines the constructs with a converted enhancer showed a high constitutive activity, the activity of several of the constructs was also induced by TPA. This is particularly the case for constructs carrying two or three canonical sites. Similarly, these constructs were found to be induced in L cells and, using different DNA amounts, in HeLa cells (Fig. 3).



## Method Section

passive voice + past tense  
(...were identified)

## Results Section

active voice + past tense (We tested...)

OR

passive voice + past tense (...activity was  
measured)



# Scientific Writing in English

## — 英语科研论文写作 —



### TASK 31

(Homework)

Check the **Methods and Results** sections from at least 3 of your 10 scientific articles, and see if they describe a series of procedural steps that the authors followed? If so, is the description mainly written in the **active or passive voice**? Is it written in present tense? How is the flow of information maintained? In particular, are there time adverbials at or near the beginning of some sentences?



## Task 31



<http://www.wenjuan.com/s/iyAzmi/>