

MOI for Secondary School Sharing Session

Science Education

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YLCSS

- Major intake: Band 3 students
- Co-educational
- MOI : Chinese
- Year of implementation of Refined English Enhancement Scheme (REES): 2011-12
- Subjects involved :
Geography, **Integrated Science**, Mathematics
- Students involved:
Form 1

Lesson Observation

- Date of observation:
 - 1st: 23rd May, 2012 (by Dr. Yung of HKU)
 - 2nd: 28th May, 2012 (by REES colleagues)
- Duration: 35minutes
- Class: F.1P & 1L
- Topic: Dissolving



Content / Knowledge

- solute, solvent, solution, dissolve
- soluble, insoluble
- factors affecting the rate of dissolving



Skills

Task	Listening	Reading	Scientific thinking	Simple present tense	The use of 'because'	Comparatives	The use of 'when'
1	√	√					
2	√	√					
3		√	√				
4		√	√	√	√		
5		√	√	√		√	√

Vocabulary

1. Solvent, Solute, Solution
2. Dissolve
3. Soluble, Insoluble



Task 1

- Video playing
- Language skills involved:
 1. Listening
 2. Reading instructions
 3. Speaking



Why this video?

- The key concepts: repeated several times
- → opportunities for students to recognize the sounds and spellings
- humorous
- → attract attention
- visual & auditory input
- → suitable for different learning styles

Solution, Solute and Solvent

Task 1 – Listen to a song. Tick (✓) the words when you hear them.

<http://www.youtube.com/watch?v=3G472AA3SEs>

solute		rock sugar		solvent	
chalk powder		dissolve		salt	
solution	✓	mixture		glucose powder	

Reflection and improvement

- teacher read aloud the instructions
- → more time given to students to read the instructions themselves & with the whole class
- Before listening, no reasons provided; not understand why listen to the song.
- → point out the reasons of listening before the task & help students focus better

Task 2

- Crossword puzzle
- Language skills involved:
 1. Reading instructions
 2. Speaking
 3. Spelling

h	d	i	a	s	x	t	v	a
q	i	h	u	o	k	j	s	z
v	s	s	o	l	v	e	n	t
z	s	f	j	u	s	v	k	d
s	o	l	u	t	i	o	n	c
m	l	j	o	e	f	b	x	e
h	v	m	i	x	t	u	r	e
t	e	o	t	p	v	p	n	r



Task 2

- The exercise: a crossword puzzle → arouse interest
- Students: read aloud the words in pairs
- The teacher: segmented words into syllables & taught the pronunciation of each syllable
- The teacher: pronounced the word by linking the syllables together



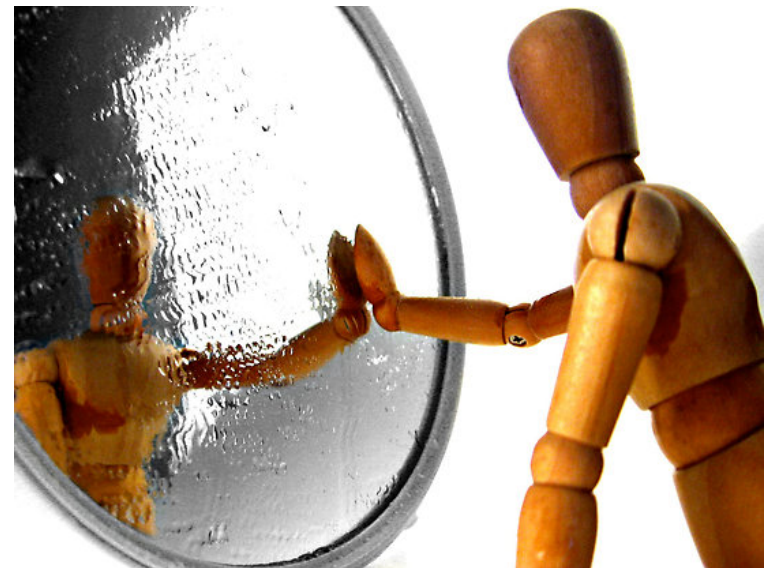
Task 2

- → individual support to some students
- → pair work: reduced stress of speaking; also benefit weak students
- One student read aloud his answer before the class → gain some successful experience



Reflection

- Students: very willing to try
- Completed the task successfully with peer support & teacher's individual help
- The selected student felt proud of himself



Task 3

- Matching
- Language skills involved:
 1. Reading instructions and dialogue
 2. Comprehension
 3. Speaking

The image shows a vertical sequence of four panels illustrating the process of making tea. To the left of the panels are two dialogue bubbles, and to the right are two more. The panels are connected by small circles, suggesting a continuous sequence.

Panel 1 (top): A teapot is pouring tea into a cup. A dialogue bubble to the left says: "Sure! Sugar is the solute and tea is the solvent. When you mix them well, the solute dissolves in the solvent, and you make the sweet solution."

Panel 2: A cup of tea on a saucer with a spoon. A dialogue bubble to the right says: "Mark, you're such a bore!"

Panel 3: A hand holding a spoon, adding sugar to a cup. A dialogue bubble to the right says: "Great! I like to have my tea sweet. How about adding a spoon of sugar to it?"

Panel 4 (bottom): A man with curly hair, looking thoughtful. A dialogue bubble to the left says: "It's tea time, Jane."

Task 3

- Read a dialogue concerning solute, solution and solvent
- Rearrange the dialogue into a correct order
- → visual aid provided to arouse interest
- → relate learning to daily life experience
- → understanding of the concepts of and relation between solute, solution and solvent with examples

Task 3

- More examples were given
- Sort the given substances into three groups (solute, solution and solvent)
- → consolidate understanding of the concepts & relate study to life again



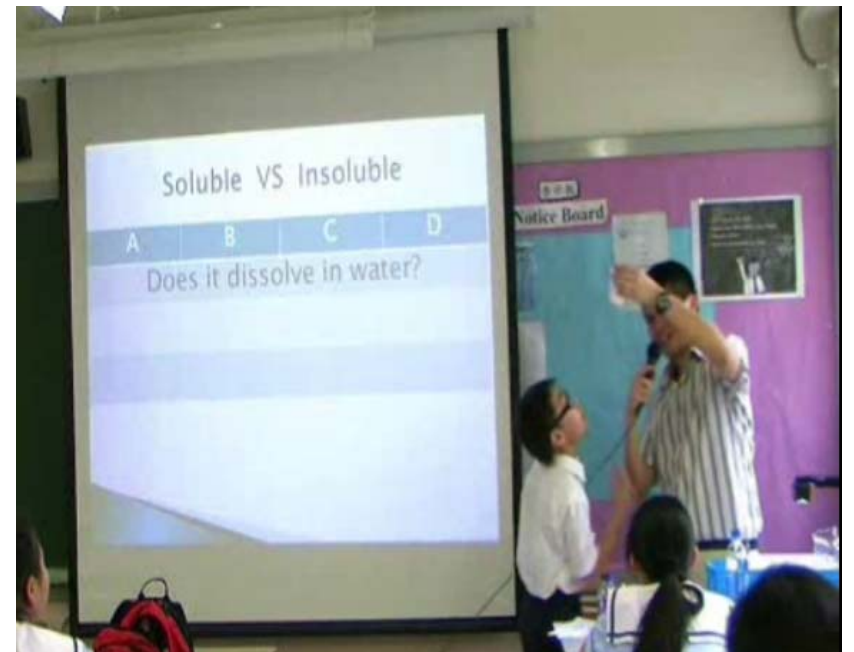
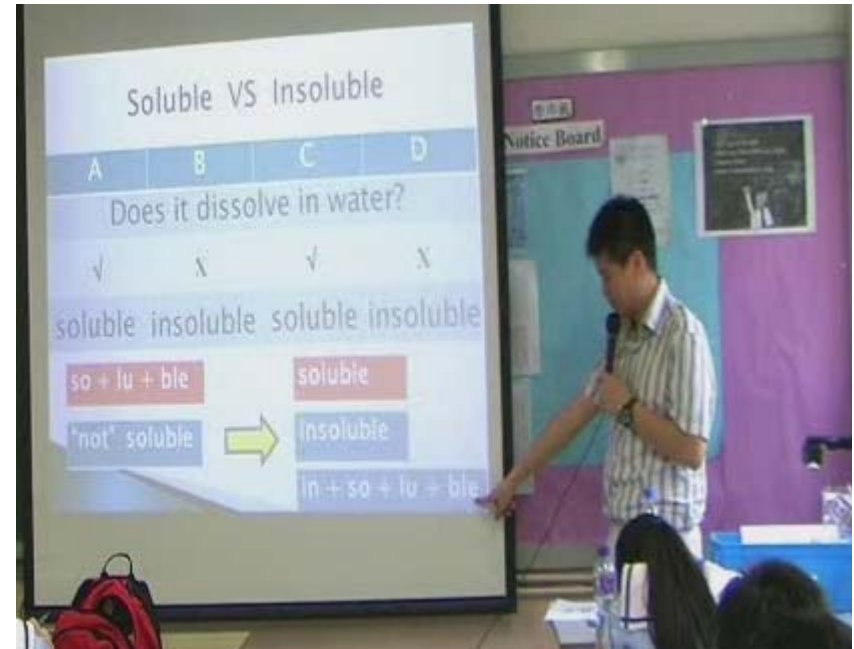
Task 4

- Soluble vs Insoluble
- Language skills involved:
 1. Reading instructions
 2. Sentence making
 3. Speaking



Task 4

- 4 experiments demonstrated to distinguish between soluble and insoluble substances
- Students participated in the experiments → increase involvement & arouse interest
- The prefix 'in-' introduced to help form a new word
- Reported the findings by making sentences using 'because'



Task 4

- In sentence making, more support at the beginning (crossing out the inappropriate parts)
- Then, filled in the missing words
- After that, needed to produce more language output
- Finally, constructed sentences on their own
- Students: to carry out experiments at home and report findings later

Task 4

1. Glucose is soluble / ~~insoluble~~ because it dissolves / doesn't dissolve in water.
2. Wood is _____ because it _____ in water.
3. Ca-C is _____ because _____
4. _____

Reflection and improvement







- Provide more examples of the prefix 'in-'
- Invite students to give examples
- → In another class, did ask students to recall words with 'in-'
- students able to provide examples
- reviewed words learned before & connected the previous knowledge with the present learning

Reflection and improvement

- Before the experiments, students knew what substances were used.
- → can let students carry out the experiments without knowing the substances used
- have to discover during the process
- → arouse curiosity & more concentrate

Task 5

- Factors affecting dissolving
- Language skills involved:
 1. Reading instructions
 2. Sentence making
 3. Speaking

		
stir	use the small-sized solute	add more solutes
		
use the large-sized solute	heat the solvent	lower the temperature

Task 5

- Found out the factors affecting the speed of dissolving
- Six methods suggested & did the experiments at home & reported next lesson
- Pictures for unfamiliar words
- Comparatives introduced
- Suffix '-er' highlighted in comparatives & reminded of the formation of comparatives

Task 5

- Exercise similar to Task 4
- Support at the beginning, but was removed gradually & students completed the task independently at the end

1. When you stir, the solute dissolves faster / more slowly.
2. When you use the small-sized solute, the solute dissolves _____.
3. When you _____, the solute _____.
4. When you _____.
5. _____.

Reflection and improvement

- Not enough time, Task 5 left to next lesson
- Through Task 5, master the subject concept (factors affecting dissolving) & consolidate knowledge of comparatives



REES reflection

- After adding English components into the teaching of other subjects, we find that ...
- 1) students: less negative towards English
- 2) more willing to speak & use English in class
- 3) English: facilitate learning in different areas

REES reflection

- 4) Better cooperation between subjects needed to maximize the achievement
- E.g. a common agreement on language items needed in different subjects → arrange the teaching schedules to have the same items practiced at the same time
- Students: sufficient chances to use the language items in various areas → master the targeted items more effectively

