4. Inferencing

Inferencing is the process which a reader must go through to get from the literal meaning of what is written to what the writer intended to convey. In other words, making an inference involves using what you know to make a guess about what you do not know, or reading between the lines.

Inferencing relies on solid background knowledge of a particular subject area. Therefore, it involves the use of clues in a text along with the reader´s own experiences to help figure out what is not directly stated. This technique entails decoding information from a text and using mental resources to understand a text's deeper meaning.

Pre-Tasks

Millions of tons of plastic waste could be turned into clean fuels and other products

Circle the best option to complete each exercise in sections 1 – 5

1. Predicting (5)

According to the cues provided, what is the text about?

a. Plastic waste pollutes oceans, ground water & the environment.
b. Plastic waste could be recycled into useful products.
c. Plastic waste puts wild animals in danger.
d. Plastic waste takes too long to decompose.

February 6, 2019

The United Nations estimates that more than 8 million tons of plastics flow into the oceans each year. A new chemical conversion process could transform the world's polyolefin waste, a form of plastic, into useful products, such as clean fuels and other items. The technology could convert up to 90 percent of the polyolefin plastic. "Our strategy is to create a driving force for recycling by converting polyolefin waste into a wide range of valuable products, including polymers, naphtha (a mixture of hydrocarbons), or clean fuels," said Linda Wang a Professor in the School of Chemical Engineering at Purdue University and leader of the research team developing this technology. "Our conversion technology has the potential to boost the profits of the recycling industry and shrink the world's plastic waste stock."

Linda Wang, Kai Jin, a graduate student, and Wan-Ting Chen, a postdoctoral researcher at Purdue, are the inventors of the technology. It can convert more than 90 percent of polyolefin waste into many different products, including pure polymers, naphtha, fuels, or monomers. The team is collaborating with a professor and her doctoral research assistant in the Fuel Laboratory of Renewable Energy of the School of Engineering Technology, to optimize the conversion process to produce high-quality gasoline or diesel fuels.

The conversion process incorporates selective extraction and hydrothermal liquefaction. Once the plastic is converted into naphtha, it can be used as a feedstock for other chemicals or further separated into specialty solvents or other products. The clean fuels derived from the polyolefin waste generated each year can satisfy 4 percent of the annual demand for gasoline or diesel fuels.

Wang became inspired to create this technology after reading about the plastic waste pollution of the oceans, ground water, and the environment. Of all the plastics produced over the past 65 years (8.3 billion tons), about 12 percent have been incinerated and only 9 percent have been recycled. The remaining 79 percent have gone into landfills or the oceans. The World Economic Forum predicts that by 2050 the oceans will hold more plastic waste than fish if the waste continues to be dumped into bodies of water.

"Plastic waste disposal, whether recycled or thrown away, does not mean the end of the story," Wang said. "These plastics degrade slowly and release toxic microplastics and chemicals into the land and the water. This is a catastrophe, because once these pollutants are in the oceans, they are impossible to retrieve completely." Wang said she hopes her technology will stimulate the recycling industry to reduce the rapidly rising amount of plastic waste. She and her team are looking for investors or partners to assist with demonstrating this technology at a commercial scale.

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2. Skimming (30)

Choose from the list A-F the main idea for paragraphs 1-6. There is one extra letter that you do not need to use.

A. Nearly 100% of polyolefin waste can be converted into polymers, monomers and fuels.
B. More than two-thirds of plastic waste ends up in landfills and the oceans.
C. Plastic waste could be transformed into valuable products by means of a conversion technology.
D. The clean fuel derived from polyolefin can meet four percent of the demand for gasoline or diesel fuel.
E. 90% of the waste floating in the oceans is made of plastic.
F. Plastic decomposes little by little and emits toxic microplastics and chemicals into the land and oceans.

Paragraph 1 ☐
Paragraph 2 ☐
Paragraph 3 ☐
Paragraph 4 ☐
Paragraph 5 ☐

3. Scanning (10)

1. What is a polyolefin?
a. A disease
b. A form of plastic
c. Many cities together
d. A plane figure with straight sides

2. Where is the conversion of plastic waste into different products being carried out?

a. Purdue University
b. The University of Michigan
c. The University of Manchester
d. Washington University

3. Who is the inventor of this technology?

a. Linda Wang
b. Kai Jin
c. Wan-Ting Chen
d. All of the above

4. How can plastic waste be recycled into valuable products?

a. By an electronic process
b. By a data manipulation process
c. By a mechanical working process
d. By a chemical conversion process

5. What kinds of valuable products can be obtained from plastic waste?

a. Pure polymers
b. Naphtha
c. Fuels
d. All of the above

6. What is the team collaborating with?

a. With the production of plastic waste
b. With the production of food in large amounts
c. With the production of high quality fuels
d. With the production of agricultural machinery

***7. What does the conversion process consist in*?**

a. Random extraction and coal liquefaction
b. Selective extraction and hydrothermal liquefaction
c. Manual extraction and natural gas Liquefaction
d. Automatic extraction and internal cooling and liquefaction

8. What inspired Wang to create this technology?

a. Reading about fuel shortages
b. Reading about recycling plastic waste
c. Reading about plastic waste pollution
d. All the above

9. What does Wang expect her technology to do?

a. Reduce the amount of plastic waste rapidly
b. Make her and her team earn a lot of money
c. Make the price of fuels go down
d. Increase fresh air

10. The text does NOT mention:

a. What the technology consists in
b. Who is conducting the research
c. The name of the research project
d. The university where the technology is being developed

Task 1

4. Inferencing (25)

1. ***What is the United Nations?***

a. An organization that was tasked to maintain international peace and security
b. The intergovernmental panel on climate change
c. A research project
d. A scientific journal

2. What is plastic?

a. A mineral that contains a metal
b. A synthetic material which can be easily shaped
c. An organic material that derived from trees
d. A material made from limestone

3. What is an instance of a plastic item most usually discarded?

a. Chair
b. Table
c. Bag
d. Safety glasses

4. What does plastic waste dumped into land and water cause?

a. Visual pollution
b. Land and water pollution
c. Environmental damage
d. All of the above

5. How long does it take plastic to degrade?

a. It depends on the plastic items
b. A long time
c. A relatively long time
d. A very short time

6. What are clean fuels?

a. Fuels that are obtained from the bottom of the sea
b. Fuels that have been gone through a cleaning process
c. Fuels that have a lower carbon intensity
d. Fuels that have been burnt

7. What industry do plastic to fuel projects belong to?

a. Chemical industry
b. Fishing industry
c. Energy industry
d. Computer industry

8. What can a collateral benefit of plastic to fuel projects be?

a. Produce a larger amount of fuel
b. Provide significant economic benefits to regions
c. Have cheaper fuels
d. None of the above

9. What is a side effect of plastic to fuel projects?

a. The reduction of the world's plastic waste stock
b. An increase in plastic manufacturing
c. A reduction in fuel prices
d. All of the above

10. What is the message of the text?

a. Wang is worried about plastic waste pollution
b. A chemical conversion process could transform plastic waste into fuels
c. The research team is collaborating with the Fuel Laboratory of Renewable Energy
d. The research team is looking for investors to develop this technology at a commercial scale