

Internet of Things

In this chapter, you will

- read about the Internet of Things (IoT),
- learn what it means to make inferences when reading a text,
- increase your knowledge of future tenses in English grammar,
- learn about how to make your paragraph a coherent one, and
- learn some technical and semi/technical vocabulary.

Internet of Things



TUNE IN FOR THE READING

Reading Strategy 2: Inferences (Deriving Conclusions from Indications)

Inferences are made all the time, every day. Look at the following example to see how common they are:

- *Sarah's toddler is in bed upstairs. She hears a bang and crying. Sherry can infer that her toddler fell out of bed.*

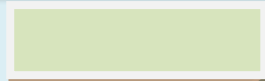
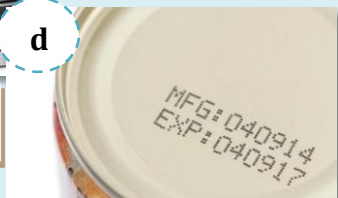
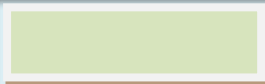
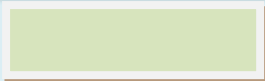
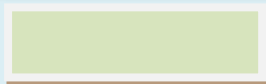
Making an inference involves using what you know to make a guess about what you do not know, or reading between the lines. This is done by using the clues in the text along with your own experiences to figure out what is *not directly said*.

Inferencing questions in a reading comprehension test can be recognized by the word 'infer', or 'imply' or 'suggest' in the question prompt. Inference means something that is only suggested in the text, it is not something that is directly stated. You need to be able to understand all the concepts in the reading passage and from them be able to logically see what else the author is trying to imply.

Visual Hints

Look at the following pictures. Try to match each picture with the relevant word from the box below expressing that action.

use-by date organ implant appliances unveil





What is the Internet of Things?

The internet of things (or as it is also known, IoT) is not new: tech companies have been discussing the idea for decades, and the first internet-connected toaster was *unveiled* at a conference in 1989. IoT is about connecting devices over the internet, letting them talk to us and each other. Cars, kitchen *appliances*, and even heart monitors can all be connected through the IoT. A thing, in the internet of things, can be a person with a heart monitor implant, an automobile that has sensors to alert the driver when tire pressure is low, or any other natural or man-made object that can be *assigned* an IP address and provided with the ability to transfer data over a network.

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As the Internet of Things continues to grow, more devices will join that list. The popular example is the smart *fridge*: what if your fridge could tell you it was out of milk, texting you if its internal cameras saw there was none left, or that the carton was past its use-by date?

/frɪdʒ/



IoT is more than smart homes and connected devices, however. It also include smart cities – think of connected traffic lights that monitor traffic and tell us to slow down or how many spaces are left in a car park, or smart bins that signal when they need to be emptied – and industry, with connected sensors for monitoring crops.

Is it Safe?

Everything new has downsides, and security and *privacy* are the biggest challenges for IoT. All these devices and systems collect a lot of personal data about people – when you are home and what electronics you use when you are there – and it is shared with other devices and held in databases by companies. Despite these, hackers have not put much attention to IoT because there is likely not many people using connected devices for an attack against them to be worth, but as soon as there is a financial benefit to hacking smart homes, the cyber crimes related to it will also increase.

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So the short answer is yes, IoT is relatively safe: you are not likely to face serious loss or damage because of your smart meter. However, there is no *guarantee*, and so far not enough is being done to ensure IoT is not the next big hacking target. As a result, several tech companies are focusing on cyber security in order to secure the privacy and safety of all this data.

How will the Internet of Things Affect Business and Work?

This all depends on the type of industry: manufacturing is perhaps one of the targets as IoT can help manufacturers to organize tools, machines, and people, and track where they are. There are literally hundreds of companies like Amazon linked to the Internet of Things, and the list should only expand in the coming years. Businesses are also top adopters of IoT solutions because they use IoT to: lower operating costs, increase productivity, and expand to new markets or develop new product offerings.

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Farmers have also been turning to connected sensors to monitor both crops and cattle, in the hopes of improving production and *efficiency* and tracking the health of their herds. The examples are endless, and all we can predict is that connected devices will likely make their ways into most businesses, just the way computers and the Internet have. Imagine your security access card being used to track where you are in the building, so your boss can calculate how much time you are spending in the kitchen making tea.



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Another interesting example is a printer *capable* of telling the print service company when it is running out of toner. Detailed information such as the exact nature of the problem and parts required to fix it can be transmitted to the service provider and their engineers, largely improving the possibility of a first-time fix.

What will internet of things look like in the future?

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Technology is full of ups and downs – it is often difficult to decide on whether an innovation is truly ground-breaking or not. But the internet of things is one of those wider ideas that is not dependent on a single project or product. Smart fridges may well be the appliance of the future, or pushed away by newer technologies, but the idea of smart devices making decisions without our input will continue. IoT is still in its *infancy*, but with thousands of new devices going online every day, all service organizations will soon be using it. A decade from now, everything could be connected. No matter where it is or what we call it, IoT is real – but what it will look like in the future is something even Google cannot answer.



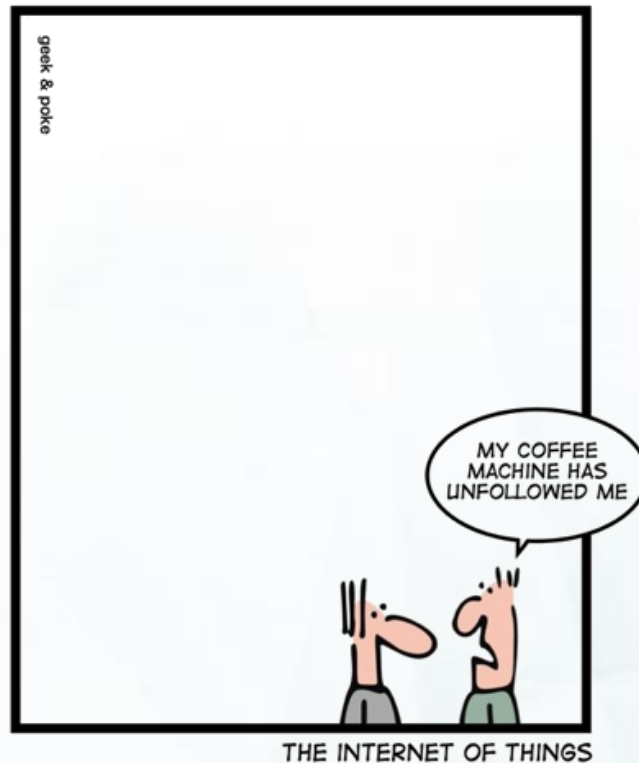
A. Recalling Information. Choose the best option for the following items.

1. Which of the following is NOT an example of IoT?
 - a) crop-monitoring devices that inform farmers of harvest time
 - b) a connected traffic viewing system that monitors traffic
 - c) a smart refrigerator that keeps track of the items inside it and their expiration date
 - d) an oven with an alarm ring to signal when the assigned baking time is over
2. It can be inferred from the text that
 - a) IoT is at its early stages of development right now.
 - b) No one can tell whether a technology would become ground breaking in future.
 - c) IoT might be the next big hacking target.
 - d) Like other technologies, IoT has its own security challenges.
3. Hackers have not put much attention to IoT because
 - a) IoT cyber security is so high and cannot be hacked
 - b) it is not financially beneficial as the number of users is still low
 - c) cyber crime rate remains relatively low
 - d) users do not face serious loss or damage
4. Internet of things is widely welcomed in business as it contributes to
 - a) tracking and organizing tools
 - b) producing new machines
 - c) increasing productivity
 - d) monitoring operation costs
5. Which of the following is NOT an essential part of internet of things?
 - a) a network
 - b) smart meter
 - c) a toner
 - d) monitoring sensors
6. The most significant challenge confronting IoT is
 - a) safe passage and storage of users' data
 - b) selecting groundbreaking innovations to use
 - c) number of people using smart connected devices
 - d) its dependency on a single product

Statement accuracy. Decide if the following statements are True (T), False (F), or Not Given (NG).

1. A thing in IoT can only be man-made objects that can be assigned to IPs.
2. IoT enables employers to track their employees by means of smart security access cards.
3. Thus far, great actions have been done to ensure IoT is not the next big hacking target.

4. The first internet-based operating device was introduced in the past decade.
5. Despite all ups and downs in the future of technology, the idea of autonomous smart devices making decisions for themselves will continue.
6. The future of IoT is largely unknown because the devices it connects might be pushed away by new technologies.



MATCH IT UP

Practice A. Match the numbered words from the reading selection to its definition in the column on the right.

- | | | |
|-------|--------------------|---|
| | 1. guarantee | a. usefulness; effectiveness |
| | 2. ground-breaking | b. a large group of animals of the same type that live together |
| | 3. cattle | c. follow the movements or trail of someone/thing |
| | 4. adopt | d. innovative; pioneering |
| | 5. infancy | e. a situation that tests someone's abilities |
| | 6. herd | f. give |
| | 7. track | g. a written promise to repair or change a product over a specific period of time |
| | 8. monitor | h. having the ability |
| | 9. assign | i. the time when someone is a baby or a newborn |

.....	10. capable	j. choose to follow
.....	11. efficiency	k. observe
.....	12. challenge	l. cows and bulls that are kept for their meat and milk

Practice B. Now, read the sentences carefully and replace the italicized word(s) or phrase with an appropriate synonym from the text.

1. An anonymous letter *warned* police to the possibility of a terrorist attack at the airport. (Paragraph 1)
2. The security *device that was used to record the presence of the things* in the room was not properly functioning. (Paragraph 1)
3. The employees have been *moved* to the new department. (Paragraph 1)
4. Unemployment and inflation are often the *disadvantages* of market economy. (Paragraph 4)
5. These beautiful old towns have remained *quite* untouched by tourism. (Paragraph 5)

LANGUAGE FUNCTION: FUTURE TENSES IN A NUTSHELL



Future Simple

can be expressed using

1. Will + (Simple) Main Verb:
 - for actions that usually happen in the future (habitual actions): *Dr. Afshar **will give** us a quiz on Monday.*
 - for actions that have not been previously planned, or for which decisions or predictions are made right now:
A: I left my cell phone in your car.
*B: I **will bring** it for you.*
2. Be Going to + (Simple) Main Verb:
 - for actions that have been previously planned: *We **are going to visit** Barcelona this summer.*
 - for action for which there exist external signs at the moment of speaking: *You are driving so fast and carelessly. We **are going to have** an accident. Look at those dark clouds in the sky. It **is going to rain**.*

Future Continuous

can be expressed using will + be + Main Verb + ing



Language Function: Future Tenses in a Nutshell

- to show an action that will be in progress at a given time in the future: *Don't call me tonight. I **will be studying** for the exam.*
- to show an action that will continue to happen at different times: *In this course, I **will be giving** surprise quizzes to my students.*

Future Perfect

is formed using will + have + past participle

- to express an action that will finish (for sure) at a specified time in the future: *We **will have finished** building this mall by next January.*

Note: time expressions beginning with 'before,' 'by,' and 'in' are usually followed by this tense.

Future Perfect Continuous

Us formed using will + have been + main verb + ing

- to emphasize the continuous nature of an action that will happen in future: *By tonight, I **will have been working** on this project for three days nonstop.*



LANGUAGE FUNCTION

Practice A. Fill in the blanks with the correct form of the verbs inside the parentheses.

Use either will or be going to future forms.

1. My grandfather (to be) 70 next Thursday.
2. Just a moment. I (help) you with the bags.
3. We (fly) to Isfahan this October to attend a conference.
4. Doris is always late. I am sure she (to be) late tomorrow morning.
5. Watch out! You (hurt) yourself.
6. If you don't stop bullying your classmate, I (tell) the principal.
7. Look! They (wash) the car.
8. Which football team do you think (win) the premier league?
9. When she passes her driving license, she (buy) a car.

Practice B. Fill in the blanks with the correct future tense for the verbs inside the parentheses.

1. It (to snow) in Brighton tomorrow evening.
2. When they (to get) married in March, they (to be) together for six years.
- 3.
4. Do you think the teacher (to mark) our homework by Monday morning?
5. After you (to take) a nap, you (to feel) a lot better.
6. This summer, I (to live) in Brighton for four years.
7. I don't think you (to have) any problems when you land in Boston.
8. By the time we get home, they (to play) football for 30 minutes.
9. We (have) dinner at a seaside restaurant on Sunday.
10. When you (to get) off the train, I (to wait) for you by the ticket machine.
11. This time next week I (ski) in Switzerland!

WRITING ESSENTIALS



Thus far we have been focusing on the topic sentences and supporting details in a paragraph. The focus of this chapter is on how to make your paragraph coherent. In a coherent paragraph, each sentence relates clearly to the topic sentence and smoothly flow into the next one. To establish coherence, a number of technique must be considered:

- *Repeat key words or phrases.* This will bind the paragraph together and help your reader understand your definition or description.
- *Create parallel structures.* Parallel structures are two or more phrases or sentences that have the same grammatical structure and use the same parts of speech (see chapter 10 for more details). This will make your sentences easier to read.
- *Be consistent in point of view, verb tense, and number.* Consistency in point of view, verb tense, and number is very important.
- *Use transition words or phrases between sentences.* Transitional expressions emphasize the relationships between ideas, so they help readers follow your train of thought or see connections that they might otherwise miss or misunderstand.

The following paragraph shows how coherence lead the reader smoothly from the beginning to the end of the paragraph.

People who are unwilling to risk failure are not capable of achieving big successes. The career of the comedian Charlie Chaplin serve as good examples. During his early days in London, people threw things at Charlie Chaplin to make him get off the stage. Would we be enjoying the starring film roles of this famous comedian today if he had taken those audiences' reactions to heart and stopped

pursuing his dream to become an actor? Learning to cope with failure makes you strong enough to view every defeat as another step toward success.



WRITE IT UP (SELF PRACTICE)

This exercise aims at helping you understand the process of developing a paragraph coherently. The topic sentence is marked. The rest of the sentences have been printed out of their correct order. On the blanks at the side put the letters of the sentences in their proper order.

Topic sentence: General Electric scientists discovered in a fifteen-year study of lightning that the Empire State Building was literally stealing the city's thunder.

- a. In its vast height, the Empire State Building collects so much electrical charge from the ground that the charge in the air attracts it.
- b. Eighty percent of the lightning there is born to fly upward mutely.
- c. Since lightning that bolts upward creates no thunder, New Yorkers are relatively unaccustomed to its sound.
- d. Lightning is caused by the collecting on the ground of an electrical charge great enough to attract the far greater charge in the air and make it come to a point.
- e. The result is lightning that moves in reverse



SEMI/TECHNICAL VOCABULARY SELF STUDY

Chapter 2 Word List. The main words in this chapter are listed here. You can check your vocabulary knowledge by providing relevant meaning(s) or synonyms for each.

Adopter:
Appliance:
Assigned (adj):
Capable:
Cattle:
Challenge:
Crops:
Cyber crime:
Downside:
Efficiency:
Ensure:
Fix (n):

Ground-breaking:
Guarantee:
Implant:
Infancy:
Innovation:
Monitor (n – v):
Relatively:
Target:
Toner:
Tracking:
Unveil:
Use-by date: