

HESI A2 VERSION 1

READING COMPEHENSION

Doppler Effect

Have you ever wondered why the whistle of a traveling, distant locomotive predicts its approach several yards before anyone actually sees it? Or why an oncoming ambulance's screaming siren is heard momentarily several feet before the ambulance comes into full view, before it passes you, and why its siren is still heard faintly well after the ambulance is out of sight?

What you are witnessing is a scientific phenomenon known as the Doppler Effect. What takes place is truly remarkable. In both of these instances, when the train or ambulance moves toward the sound waves in front of it, the sound waves are pulled closer together and have a higher frequency. In either instance, the listener positioned in front of the moving object hears a higher pitch. The ambulance and locomotive are progressively moving away from the sound waves behind them, causing the waves to be farther apart and to have a lower frequency. These fast-approaching modes of transportation distance themselves past the listener, who hears a lower pitch.

1. Which statement is not listed as a detail in the passage?
 - A. The oncoming sound waves have a higher pitch because of high frequency and closeness of waves.
 - B. The oncoming sound waves have a higher pitch because of low frequency and closeness of waves.
 - C. The whistling sound of the locomotive as it approaches and passes can be explained by the Doppler effect.
 - D. The high-pitched sound of the ambulance as it approaches and passes can be explained by the Doppler effect.

2. What is the main idea of the passage?
 - A. Trains and ambulances make distinctly loud noises.
 - B. Low-frequency waves make high-pitched sounds.
 - C. High-frequency waves make low-pitched sounds.
 - D. The Doppler Effect explains the rationale for why sound is heard initially more strongly and then faintly after a moving object has passed.

3. What is the meaning of the word phenomenon in the second paragraph?
 - A. Something that is lifeless to the senses

Infotrac, a CD-ROM computer database available at libraries or on the Web, indexes hundreds of popular magazines and newspapers, as well as medical journals such as the Journal of the American Medical Association and New England Journal of Medicine.

Your library may also carry searchable computer databases of medical journal articles, including MEDLINE/PubMed or the

Cumulative Index to Nursing and Allied Health Literature. Many of the databases or indexes have abstracts that provide a summary of each journal article. Although most community libraries don't have a large collection of medical and nursing journals, your librarian may be able to get copies of the articles you want. Interlibrary loans allow your librarian to request a copy of an article from a library that carries that particular medical journal. Your library may charge a fee for this service. Articles published in medical journals can be technical, but they may be the most current source of information on medical topics.

39. What is the main idea of the passage?
- A. Infotrac is a useful source of information.
 - B. The community library offers numerous resources for medical information.
 - C. Searching for medical information can be confusing.
 - D. There is no reason to prepare a list of topics before visiting the library.
40. What is the meaning of the word popular as it is used in the third paragraph?
- A. complicated
 - B. old-fashioned
 - C. beloved
 - D. for the general public
41. Which statement is not a detail from the passage?
- A. Abstracts summarize the information in an article.
 - B. Having a prepared list of questions enables the librarian to serve you better.
 - C. Infotrac is a database on CD-ROM.
 - D. The articles in popular magazines can be hard to understand.
42. What is the meaning of the word technical as it is used in the fourth paragraph?
- A. requiring expert knowledge

- B. 0.234
- C. 7.64
- D. 2.448

30. Multiply: $(99)(0.56) =$

- A. 99.30
- B. 99.56
- C. 55.44
- D. 199.54

31. Multiply: $(88)(7.08) =$

- A. 862.5
- B. 88.040
- C. 64.252
- D. 623.04

32. Multiply: $375 \times 2.3 =$

- A. 862.5
- B. 750
- C. 225.75
- D. 1125

33. How many ounces are in 2 quarts?

- A. 8 ounces
- B. 16 ounces
- C. 32 ounces
- D. 64 ounces

34. A shopper spends \$75.64 at one store and \$22.43 at the next store. The shopper started out with \$100.00. How much money does the shopper have left?

- A. \$1.93

- C. collect
- D. suppress

33. What is the meaning of the word *proscribe*?

- A. anticipate
- B. prevent
- C. defeat
- D. forbid

34. Select the meaning of the underlined word in this sentence.

Wracked by abdominal pain, the victim of food poisoning moaned and rubbed his distended belly.

- A. concave
- B. sore
- C. swollen
- D. empty

35. Select the meaning of the underlined word in this sentence:

Despite the absence of overt signs, Dr. Harris suspected that Alicia might be suffering from the flu.

- A. concealed
- B. apparent
- C. expert
- D. delectable

36. Select the word that means “something added to resolve a deficiency or obtain completion.”

- A. supplement
- B. complement
- C. detriment
- D. acumen

C. bird

D. blue

30. Which word in the following sentence is a conjunction? The little girl wanted a cookie, but she didn't take one.

A. little

B. but

C. take

D. the

31. Which word in the following sentence is a direct object? The nurse helped the patient with the medication.

A. helped

B. nurse

C. patient

D. medication

32. Which word or phrase in the following sentence is a subject? The nurses went to the conference room.

A. conference

B. went to

C. room

D. nurses

33. Which of the following sentences is grammatically correct?

A. Walking home from class, the students watched the snow begin to fall.

B. Walking home from class, the snow began falling on the students.

C. Walking home from class, snow fell on the students.

D. Walking home from class, the students watched the snow fell.

34. Select the best word for the blank in the following sentence. The student sang well, but she danced____.

A. bad

B. badly

23. What is the name of the process in the lungs by which oxygen is transported from the air to the blood?
- A. osmosis
 - B. diffusion
 - C. dissipation
 - D. reverse osmosis
24. Which of the following epithelial types is correctly matched with its major function?
- A. Simple squamous epithelium—secretion or absorption
 - B. Stratified squamous epithelium—changes shape when stretched
 - C. Stratified squamous epithelium—diffusion
 - D. Simple columnar epithelium—secretion or absorption
25. Which of the following are tropic hormones? (Select all that apply.)
- A. Somatotropin
 - B. Follicle-stimulating hormone
 - C. Antidiuretic hormone
 - D. Thyroid-stimulating hormone