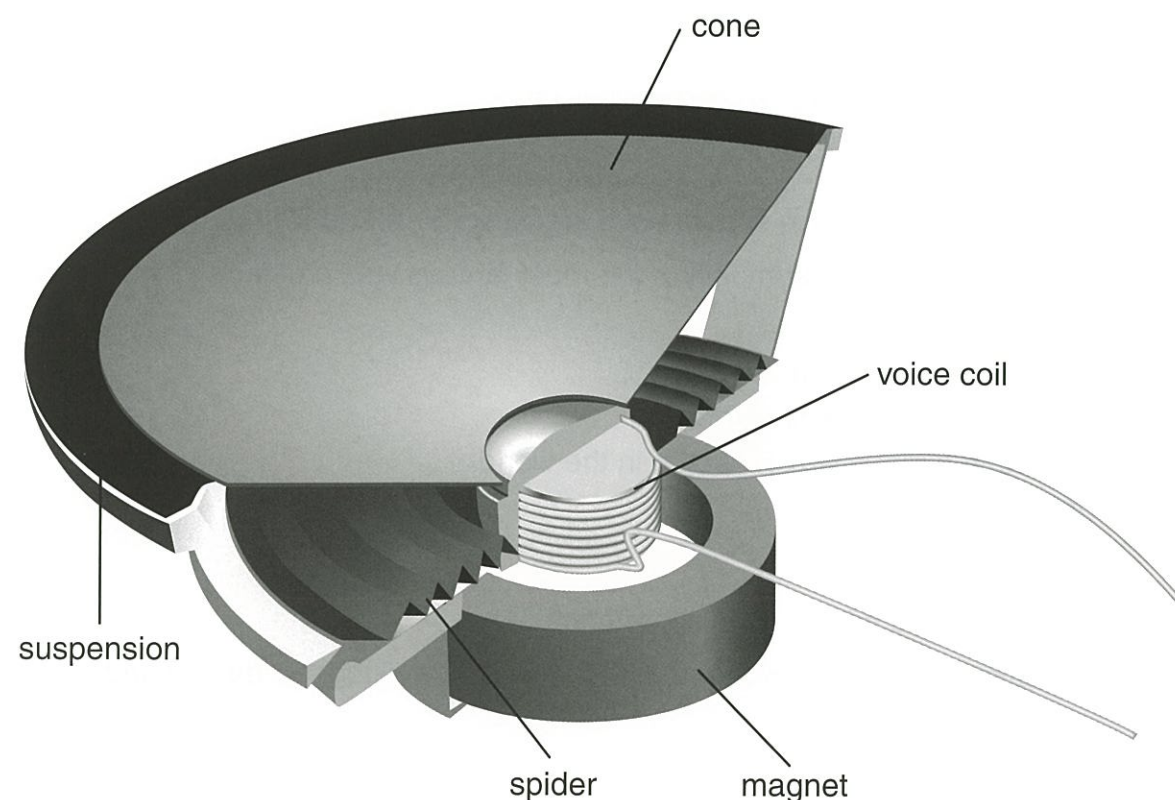


# How a Speaker Works

Have you ever wondered how a speaker generates sound? A speaker works a bit like an air pump. When the cone of the speaker moves, it moves the air that surrounds it. This air in turn moves more air, creating a vibration that we interpret as sound. The speed at which the cone vibrates, combined with the distance it moves, helps to vary the sounds that we hear.

Inside the speaker is the voice coil. The voice coil consists of a metal (usually iron) core that has been wrapped in a metal wire. When an electric current passes through the wire, the core is magnetised and the voice coil becomes an 'electromagnet'. Depending on the direction of the current, this electromagnet is either attracted towards or repelled from the large fixed magnet. This alternating attraction and repulsion makes the voice coil vibrate, which in turn vibrates the cone. The spider and suspension, the two other moving parts of the speaker, work together to return the voice coil to position.

The cone's shape helps to amplify the sound in the same way that speaking into a cone-shaped newspaper makes your voice louder. A larger cone will displace more air, creating a louder sound. This is why many music concerts feature very large speakers. Headphones contain tiny speakers, as do phones and computers. Whenever you listen to sounds through an electronic device you will be experiencing electromagnetism at work.



- 21 What is the purpose of the spider?
- A It creates strong vibrations in the cone.
  - B It makes the electromagnet more powerful.
  - C It amplifies the sound coming from the speaker.
  - D It helps the voice coil return to its original position.

- 22 How does the voice coil affect the cone?
- A It stops the cone from vibrating.
  - B It magnetises the air around the cone.
  - C It sends an electric current into the cone.
  - D It moves the cone backwards and forwards.

- 23 Why does the text mention a cone-shaped newspaper?
- A to make fun of the people who design speakers
  - B to explain why some speakers are cheap to produce
  - C to make a highly technical device seem straightforward
  - D to explain that making good music is not so complicated

- 24 Which part of the speaker does not move?
- A cone
  - B magnet
  - C voice coil
  - D suspension

- 25 Which scientific fact will help people better understand this text?
- A Magnets attract and repel each other.
  - B Sound cannot travel through a vacuum.
  - C The speed of light is faster than the speed of sound.
  - D A freely suspended magnet points to the North Pole.



Choose the correctly spelt word for each blank space.

### TV Cat

Our cat has a 26 with detective shows on television. When actors appear on screen, our cat will 27 touch them with its paw. This may seem 28 but our cat will often ignore the 29 characters and gently touch the face of hardened 30.

**26** Choose the best option for space 26.

- A facination
- B fasionation
- C facsination
- D fascination

**27** Choose the best option for space 27.

- A ocassionly
- B ocaisonally
- C occasionally
- D occaissionally

**28** Choose the best option for space 28.

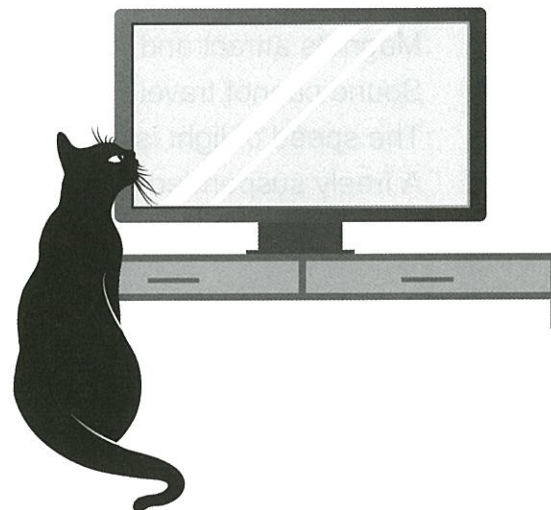
- A adorable
- B adorabul
- C adourable
- D adoorabel

**29** Choose the best option for space 29.

- A inocent
- B innocent
- C innocent
- D innaccent

**30** Choose the best option for space 30.

- A criminels
- B criminals
- C crimenels
- D crimenals



**16** Which word should have a comma (,) after it?

If he is too scared to take a chance someone else will.

- A he
- B scared
- C take
- D chance

**17** Which word should have a semicolon (;) after it?

The twins are holding a garage sale they hope to raise money by selling old books.

- A holding
- B sale
- C money
- D selling

**18** Which two words should have a comma (,) after them?

Aisha feeling cheerful after meeting her cousin raced towards the park.

- A Aisha cheerful
- B Aisha cousin
- C cheerful her
- D after cousin

**19** Which part of the sentence should have brackets ( ) around it?

Marie Tussaud opened her museum the most famous wax museum in the world in 1835.

- A opened her museum
- B the most famous wax museum
- C the most famous wax museum in the world
- D in the world

**20** Which word should have a colon (:) after it?

For relaxation doctors recommend gentle activities walking, gardening and reading.

- A relaxation
- B recommend
- C gentle
- D activities



Choose the best word(s) for each blank space.

### Shoe Wars

You've most likely heard of the cola wars **11** the top soft drink brands, but are you familiar **12** the shoe wars? In the **13** twelve months alone, the four leading sports shoe manufacturers have **14** splashed **15** almost one billion dollars on shoe research.

**11** Choose the best option for space 11.

- A within
- B inside
- C through
- D between

**12** Choose the best option for space 12.

- A with
- B about
- C towards
- D regarding

**13** Choose the best option for space 13.

- A recent
- B earlier
- C latest
- D last

**14** Choose the best option for space 14.

- A totally
- B mutually
- C collectively
- D additionally

**15** Choose the best option for space 15.

- A in
- B out
- C up
- D down



Replace the **bolded** words. The meaning of the text should remain the same.

### My Street

I live near a football stadium. My street can become **congested** at weekends and the fans can be **raucous**. At times like this I visit the **tranquil** park on the other side of town where I **unwind** with a book. I am **fortunate** to live where I do.

**31** Select the best word to replace **congested**.

- A scary
- B crowded
- C colourful
- D exciting

**32** Select the best word to replace **raucous**.

- A wild
- B foolish
- C strange
- D cheerful

**33** Select the best word to replace **tranquil**.

- A huge
- B green
- C peaceful
- D beautiful

**34** Select the best word to replace **unwind**.

- A sit
- B read
- C play
- D relax

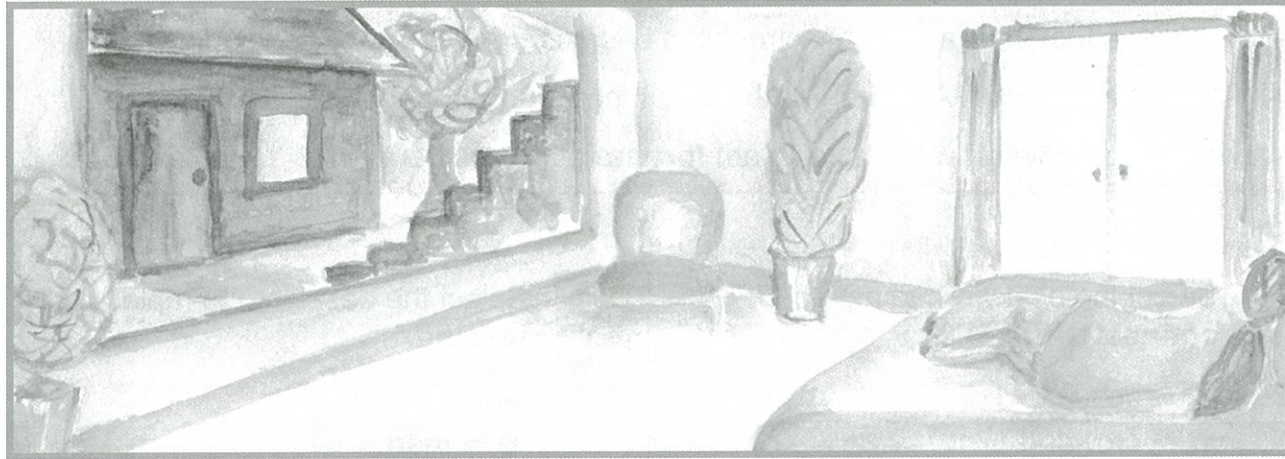
**35** Select the best word to replace **fortunate**.

- A fussy
- B lucky
- C thrilled
- D frustrated





# Falconette Lynx



When I first entered the hotel room I didn't even notice the picture even though it took up an entire wall.

'Run yourself a bath, Mila. I'll meet you in the lobby at six.' Father was staying in a room down the hallway.

I had an hour to myself but I didn't run a bath. Instead I rolled around on the bed. It was then that I saw the picture of the red house with the green door. For some reason I had to touch it. In the picture, the house was at the bottom of a steep, stone staircase. And as I got closer to the picture it actually felt like I was walking down the staircase. I could almost feel myself knocking at the door. Below the picture were the words, 'Red House by Falconette Lynx'.

At six, I went to the lobby. While waiting for father I struck up a conversation with the hotel receptionist. I asked him about the picture, and he told me about Falconette Lynx – an elderly local artist who very rarely left her house. Apparently her paintings had a strange effect on people. There were stories circulating about the mystical power of her work. Rumour had it that she was able to speak to the spirits.

'Enough of this nonsense,' said father, bringing me back to reality. 'It's time for our walk.'

After walking for over an hour I was starting to tire. Perhaps it was father's pace or the fact that he had constantly talked about his work. Either way I was sleepy. So I wasn't sure whether my brain was playing tricks on me when I saw the stone staircase. At the bottom of the staircase was a red house with a green door. A strange feeling came over me.

'Where are you going?' asked father abruptly. But my mouth wouldn't answer. My feet moved down the staircase like I had no control over them. My hand reached out and touched the green door. It swung open.

At first I saw a hand, and then an arm, and then the body of an elderly woman on the tiled floor. She was barely breathing.

Apparently, Mrs Lynx had been lying there for two days. The ambulance driver said my actions saved her life.

Father said that the whole thing was a huge coincidence. I'm not so sure.

- 6 What does the blog entry show about Amrita?
- A She keeps changing her mind.
  - B She is easily persuaded by what others say.
  - C She checks her facts before making decisions.
  - D She acts before carefully considering her options.

- 7 Which of these reasons most persuaded Amrita to limit her meat intake?
- A Eating meat is cruel.
  - B Most of her friends are vegetarian.
  - C Vegetables are healthier than meat.
  - D A veggie diet is better for the environment.

- 8 What is stopping Amrita from becoming fully vegetarian?
- A She is finding it very difficult to give up meat.
  - B She is refusing to be bullied by vegetarians online.
  - C She only knows how to cook meals that contain meat.
  - D She would be too embarrassed to tell her friends she was vegetarian.

- 9 What does Amrita suggest she might do in the future?
- A start a website about healthy eating
  - B conduct her own research on the issue
  - C try to convince others to turn vegetarian
  - D persuade her vegetarian friends to eat meat

- 10 What is the main purpose of Amrita's blog entry?
- A to criticise those who oppose her
  - B to question the values that society holds
  - C to persuade people to support her cause
  - D to explain the reasons for a personal choice



# Ready for Veggie

## Amrita's blog



I have always been aware that there are a lot of vegetarians in the world but, being an avid burger fan, I had never thought about becoming a 'veggie'. Recently, however, a number of my friends have been posting about the issue on their social media sites, and it got me thinking ... Could I really give up meat? While some of the arguments they presented (such as 'eating meat is cruel') didn't manage to persuade me, two of them got my attention: a vegetarian diet is healthier, and it is also better for the environment. So, I decided to investigate further.

A vegetarian diet, it turns out, may make you live longer. Studies in different countries (China and the US for instance) support these findings. Meat is the largest source of saturated fat in the human diet and saturated fat is pretty bad. It is thought to cause heart disease and has even been linked to some forms of cancer. A vegetarian diet pretty much ensures that you are eating the required amount of vegetables, and this means your body will be getting enough fibre and other nutrients such as vitamins and minerals.

The claim that vegetarianism is better for the environment is a more compelling yet complex argument. Farm animals release a lot of methane – a gas that is produced in the gut. Methane causes much more global warming than carbon dioxide. Reducing the number of farmed animals in the world reduces the amount of methane entering the Earth's atmosphere, and this could help slow down the problems associated with climate change.

For this reason I have decided to cut back on the amount of meat that I eat, limiting myself to just three meat meals each week. I'm not ready to turn fully vegetarian just yet – I like the taste of burgers just a little too much – but maybe one day I'll be joining my friends online, trying to persuade others to give up meat.

Amrita

### Comments

- 36 How does Mila feel when she sees the painting?
- A scared
  - B confused
  - C delighted
  - D fascinated
- 37 What does the hotel receptionist suggest about Falconette Lynx?
- A She became crazy a long time ago.
  - B Her talents are not truly appreciated.
  - C Her artwork has supernatural qualities.
  - D She has donated many paintings to the hotel.
- 38 Why does Mila feel weird during the walk?
- A She sees the house from the picture.
  - B She hears the voice of Falconette Lynx.
  - C She has been walking at such a fast pace.
  - D She feels dizzy from climbing the staircase.
- 39 Compared to her father, what does the text most suggest about Mila?
- A She is more observant of details than her father.
  - B She is more passionate about art than her father.
  - C She is more open to alternative ideas than her father.
  - D She is more sympathetic towards old people than her father.
- 40 The incident makes the following day's newspaper. What is the most likely headline for the story?
- A Local artist rescued by girl
  - B Falconette Lynx dies in her home
  - C Ambulance driver finds missing woman
  - D Body parts discovered in the famous Red House



# Mare Tranquillitatis

*This is a fictional letter set in the future.*

To the editor of Galaxy Magazine,  
19th November 2050

Dear Editor

In the previous edition of Galaxy Magazine, Professor Curlew argued that no mining should take place on the moon for at least five years. He claims that further research needs to be carried out in the region of *Mare Tranquillitatis* to determine whether life has ever existed on the moon. Really? I suspect that his true motives are a little more cynical.

It is well-known among space experts that Curlew's company, Lunite, is planning to mine the moon for precious minerals in the future. And with Lunite's rivals only months away from beginning exploratory excavations, I believe that Curlew is trying to prevent others from gaining a head-start over Lunite.

Previous studies have conclusively shown that no life has ever existed in *Mare Tranquillitatis* or in any other region of the moon. To argue that more research is needed is simply ludicrous. Curlew has no interest in the existence of life-forms other than himself.

Dr Kale Dravid



1 The text portrays jellyfish as creatures that

- A should be admired.
- B are amusing to watch.
- C can be quite scary.
- D need protecting.

2 How is the box jellyfish different from most other jellyfish?

- A It is poisonous.
- B It attacks sea turtles.
- C It has barbs on its tentacles.
- D It can control its movement.

3 *They do not have bones like real fish.*

According to the text, what problem does this create for jellyfish?

- A They cannot swim very fast.
- B They cannot live for a long time.
- C They cannot easily defend themselves.
- D They cannot inject large amounts of venom.

4 Why might some fish swim between a jellyfish's tentacles?

- A to attack the jellyfish from below
- B to protect themselves from bigger fish
- C to remove dead scales from their bodies
- D to eat the food left over from the jellyfish's meal

5 What is special about the *turritopsis dohrnii*?

- A It has a shell like a turtle.
- B It can survive without food.
- C It has the shortest life-span of any jellyfish.
- D It can turn back into a baby jellyfish when it needs to.



# Jellyfish

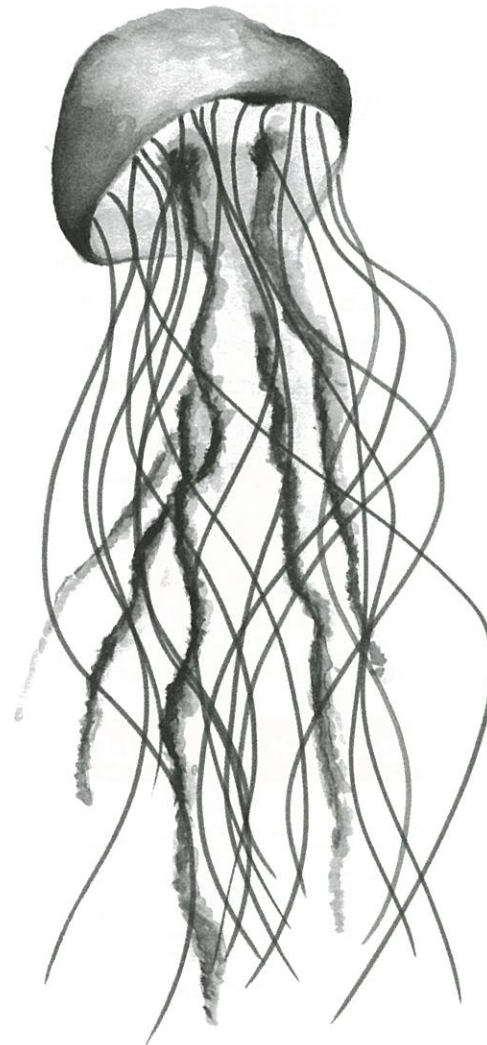
Jellyfish are not fish. They do not have bones like real fish. They also have no heart, no blood and, rather amazingly, they do not have a brain. Yet these creatures have been able to survive in our oceans for 650 million years.

There are about 1,500 different species of jellyfish and scientists are discovering more each year. But the scientists need to be careful because all jellyfish are poisonous. Their tentacles (the long string-like parts which hang from their bodies) contain thousands of tiny, sharp barbs that can inject venom into the creatures they come into contact with. Sometimes this venom is used for self-defence, and sometimes it is used to stun or kill prey.

Not all jellyfish can hurt humans (many are just too small), but the box jellyfish is one species that is deadly. Just one sting from one of its three-metre long tentacles can kill a human in minutes. In fact, the box jellyfish has enough poison in its body to kill 60 humans at once. Unlike most jellyfish that simply float, the box jellyfish is able to propel itself through the ocean by pushing jets of water through its body, using its 24 eyes to locate its prey.

Despite having such dangerous stings, jellyfish are eaten by other animals. Having no shell or bones, a jellyfish is an easy meal for a shark. Sea turtles will also eat jellyfish, even box jellyfish, as they are not affected by their stings. Some species of small fish are also not affected by the poison and they use the jellyfish tentacles as a shield from predators.

Incredibly, one species of jellyfish may be able to live forever. When the *turritopsis dohrnii* feels threatened, is injured or starving, it can revert back to its early life stage and begin growing again. Most jellyfish, however, will live for less than one year and some of the smallest jellyfish may only survive for just a few days.



41 What is *Mare Tranquillitatis*?

- A a planet
- B a life-form
- C a precious mineral
- D an area of the moon

42 What does Dr Dravid accuse Professor Curlew of?

- A boasting
- B not being honest
- C using out-of-date research
- D misunderstanding the situation

43 What does Dr Dravid think was the reason behind Professor Curlew's proposal?

- A to destroy life on the moon
- B to conduct further research
- C to delay Lunite's competitors
- D to increase mining on the moon

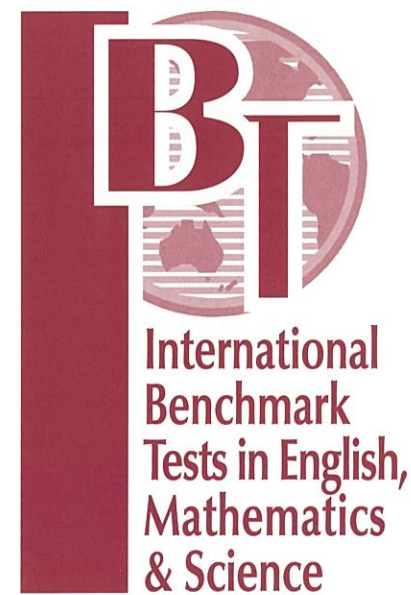
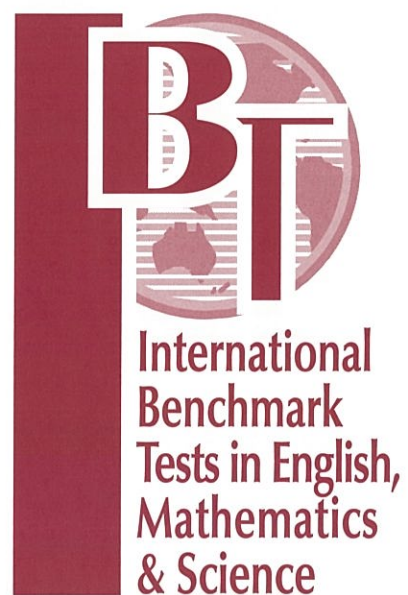
44 According to Dr Dravid, what does the earlier moon research show?

- A There has never been any life on the moon.
- B There is probably some form of life on the moon.
- C There will be life-forms on the moon in the future.
- D There was once life on the moon but not anymore.

45 The last sentence of this letter is

- A a prediction.
- B a compliment.
- C a scientific fact.
- D a personal attack.





# English

STUDENT NAME \_\_\_\_\_

NAME OF SCHOOL \_\_\_\_\_

### TEST INSTRUCTIONS

#### FILL IN YOUR DETAILS

Turn to your ANSWER SHEET and fill in your name, school, grade, section, today's date, your date of birth and gender.

#### ANSWERING QUESTIONS

Go to the ENGLISH ANSWER SHEET.



This test has **45 QUESTIONS**. Each question has four possible options.

Choose the **BEST** answer from the four options, **A, B, C** or **D**.

FILL in **ONE** circle on your answer sheet with a pencil.

If you make a mistake, erase the pencil mark and fill in a different circle.

You must colour the entire circle as shown below:

<b>Correct response</b> 	<b>Incorrect responses</b> 
	Line    Very light pencil    Pen    Colored pencil

Marks are NOT deducted for incorrect answers.

**ALL ANSWERS SHOULD BE MARKED ON YOUR ANSWER SHEET ONLY.**

#### EQUIPMENT ALLOWED IN THIS TEST

You may use a 2B or B pencil for this test. You may NOT use a dictionary for this test.

#### TIME ALLOWED FOR TEST

The time allowed to complete this test is **60 minutes**.