National Reading Tests

READING
ED4

First name _____

Last name _____

School _____

Class _____

Date of birth ○○ ○○ ○○○○

Date of test ○○ ○○ 2016

Total score ☐ (maximum 37)

Llywodraeth Cymru
Welsh Government

Practice questions

In this booklet, there are different types of question for you to answer in different ways. Here are some practice questions which show you the types of question you will see in the test. The instructions tell you what you need to do. Start by reading the text in the box below.

The simple yet strategic game of noughts and crosses, also known as tic-tac-toe, has been around to fill periods of boredom for longer than you may think. It was played over 2,000 years ago in the Roman Empire where it was called *Terni Lapilli*. Players just had three stones which they moved around a grid. However, the game may date back even further as there is evidence that the ancient Egyptians played some form of it. This classic game has survived the test of time though and in 1952 it was the first game to be played on a computer. So next time you draw yourself a grid, you can thank the ancient Egyptians for easing your boredom.

a **Find** and **copy** another name for noughts and crosses.

Hint: You must look back in the text to find this.

_____

b What was needed to play *Terni Lapilli*?

Tick **two**.

Hint: Check how many you have to tick.

- paper ☐
- a grid ☐
- a pencil ☐
- stones ☐
- a computer ☐

c Number these events from 1 to 4 to show the order in which they happened.

One number has been done for you.

It became the first computerised game. ☐

The game was played in the Roman Empire. ☐

Noughts and crosses is still played today. 4

The game was played by ancient Egyptians. ☐

d Put ticks to show which statements are **true** and which are **false**.

	True	False
Some people play the game when they are bored.		
In the Roman Empire the game was called *Terni Lapilli*.		
It first became popular when it was made into a computer game.		

STOP

Please wait until you are told to start work on page 4.

In this booklet, you have three texts to read and answer questions about. Read the first text carefully BEFORE you start answering the questions for that text. Then carefully read the next text BEFORE answering the questions and so on.

You should work through the booklet, referring to the text when you need to, until you finish page 15 or until you are asked to stop.

You have up to 60 minutes to do the test.

A whale of an appetite

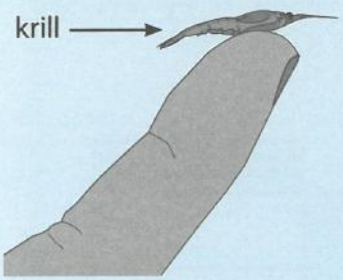
What's the biggest thing a blue whale could swallow?

a) a very large mushroom **c) a grapefruit**

b) a small family car **d) a sailor**

Answer: c) a grapefruit

Quite interestingly, a blue whale's throat is almost exactly the same diameter as its belly button (which is about the size of a side plate), but a little smaller than its eardrum (which is more the size of a dinner plate).



For eight months of the year, blue whales eat virtually nothing, but during the summer they feed almost continuously, scooping up three tons of food a day. As you may have learned in science lessons, their diet consists of tiny, pink, shrimp-like crustaceans called krill, which slip down a treat. Krill come conveniently served in huge swarms that can weigh over 100,000 tons.

Quite simply, blue whales' mouths are gigantic. They extend all the way down to their belly buttons and their pleated throats enable them to expand their mouths – a bit like blowing out your cheeks, but *much* more dramatic!
To feed, they open these enormous mouths and take in volumes of water as big as themselves – imagine swallowing yourself – then they push all the water back out through their baleen, which is the whales' bristle-like version of teeth. The baleen acts like a comb and the krill get caught inside the whales' mouths so they end up with *big* mouthfuls of food.

Guess what!

A blue whale could inflate 1,250 balloons in one breath.

100 people could fit inside the mouth of a blue whale.

The narrow gauge of a blue whale's throat means it couldn't swallow a human. The only whale with a throat wide enough to swallow a person whole is the sperm whale and, once inside, the intense acidity of the sperm whale's stomach juices would make survival impossible. There was a case in 1891 in which a sailor, James Bartley, claimed to have been swallowed by a sperm whale and rescued by his crewmates fifteen hours later, but this has been nailed as a fraud!

Aside from its throat, everything else about the blue whale is big! At 32m (105 feet) in length, it is the largest creature that has ever lived – three times the size of the biggest dinosaur and equivalent in weight to 2,700 people. Its tongue weighs more than an elephant; its heart is the size of a family car; its stomach can hold more than a ton of food. It also makes the loudest noise of any individual animal: a low frequency 'hum' that can be detected by other whales over 16,000 km (10,000 miles) away. That's like you being able to listen in on people's conversations all the way over in Australia!

1 Look at the question box at the start of the text.

a) Why is the answer unexpected?

because the reader might expect that ...

Tick **one**.

it would be unlikely to find grapefruits in the ocean	☐
such a large creature would swallow larger items of food	☐
a whale's diet would consist entirely of meat	☐
a whale would need more than a grapefruit to satisfy its hunger	☐

1a 1m

b) What is the purpose of this question box?

Tick **one**.

to provoke debate about the topic	☐
to assess the reader's knowledge	☐
to stir the reader's curiosity	☐
to summarise the key idea	☐

1b 1m

2 Put ticks to show whether the following are used to illustrate the **weight** or the **size** of different features of the blue whale.

	Used to illustrate	
	weight	**size**
100 people		
dinosaur		
2,700 people		
elephant		
family car		

2 1m

3 The writer refers to the fact that the reader might already know something about the diets of blue whales.

Find and **copy** the phrase that shows this.

_____

3 1m

please turn over

TOTAL 4m

4 *...which slip down a treat.*

Why has this phrase been included?

Tick **two**.

- It fits with the informal tone of the text. ☐
- It shows how hard it is to trap the krill. ☐
- It shows that krill are a special treat for blue whales. ☐
- It highlights the writer's scientific expertise. ☐
- It illustrates how easily blue whales eat krill. ☐

4 1m

5 Number these events from 1 to 5 to show the order in which they happen when a blue whale eats.

- The whale takes in water and krill. ☐
- The krill are swallowed. ☐
- The whale pushes out the water. ☐
- The whale widens its mouth. ☐
- The krill are captured in the baleen. ☐

5 1m

6 The baleen is compared to teeth, bristles and a comb.

Put ticks to show whether the following aspects of the baleen best support the comparison to **teeth**, **bristles** or a **comb**.

	Teeth	Bristles	Comb
the location of the baleen in the mouth			
the texture of the baleen			
the function of filtering or separating things			
the role of the baleen to enable feeding			

6 1m

7 **Find** and **copy** the phrase that shows that James Bartley's story has been disproved.

_____

7 1m

8 Put ticks to show which statements are **true** and which are **false**.

	True	False
A blue whale's eardrum is larger than its belly button.		
Blue whales store food in their cheeks to survive through winter.		
The baleen acts as a filter to separate water from food.		
A blue whale is larger than a sperm whale in every way.		
A sperm whale cannot swallow a man.		
Whales can hear human conversations from the other side of the world.		

8
2m

9 Put ticks to show which statements are **fact** and which are **opinion**.

	Fact	Opinion
It is amazing that such a huge animal can only swallow small things.		
Blue whales must feel really hungry during the winter.		
There is no known creature bigger than the blue whale.		
A blue whale is a magnificent creature.		

9
1m

please turn over

TOTAL
7m

The descent into darkness

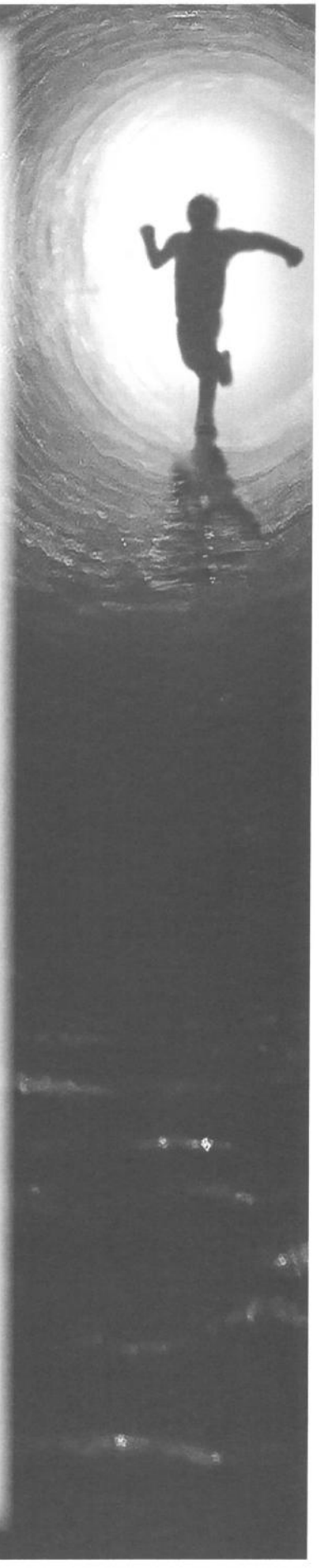
The tunnel was not as dark as Fin had first thought. And there was noise. Not just his own breathing, loud in his ears, but the echo of two pairs of pounding feet. He was holding his distance from the man, but he didn't know how much longer he'd be able to keep up the pace. His lungs were starting to ache. And the tunnel seemed to be narrowing. Not only narrowing, but shrinking. Soon he would have to lower his head.

He ran on. He had just begun to stoop when without warning the tunnel opened into a smaller chamber whose floor plummeted away into nothing a few feet in front of him. He stopped and glanced around. To his left were two tunnels, one dimly lit with a set of rusty-looking rails running down its centre, the other pitch dark.

Why he chose the unlit tunnel, Fin didn't know, perhaps some primitive instinct of the hunted to seek darkness. With his pursuer gaining, he plunged onwards, and within a few paces all light was gone. Running as fast as he dared with only the scrape of rock on his outstretched fingertips to guide him, with no knowledge of whether the next step would slam him into something solid or pitch him out into thin air, produced in Fin a feeling of terror such as he could never have imagined. Within a short time he was drenched in cold sweat, his heart hammering fit to burst, and always the screaming temptation to reach into his pocket for the flashlight. His pursuer had no light with him, otherwise he would surely have turned it on his quarry. So long as Fin remained in the darkness, therefore, there was always the chance he could duck away from the main tunnel if the opportunity presented itself. But so far his fingers had met nothing but a continuous wall of rough rock. The air was chill and damp. The tunnel continued, twisting every so often as it led downwards in a descent that seemed to go on forever. And then, suddenly, there was no rock at his fingertips.

When he fell it was so sudden that he didn't know what was happening. One moment his feet were on the ground, the next he was in the air. He landed on his back and slid for a short distance, then came to rest. He lay still for some time, panting with shock, then sat up and felt himself. Nothing was broken, though there were aches and doubtless bruises.

Where was he? Was he in a trap? Might he simply die here, alone in the darkness? Fin could feel panic and despair crawling in from the corners of his mind; there was no way out of here.



1 *The tunnel was not as dark as Fin had first thought.*

What does this show?

Tick **one**.

- He had taken a different tunnel to the one he had expected. ☐
- He could see the light at the end of the tunnel. ☐
- He wished he had taken a darker tunnel. ☐
- He was able to see more than he had expected. ☐

1 1m

2 At the beginning of the text, what was Fin **most** worried about?

Tick **one**.

- that his pursuer would hear his loud breathing ☐
- that he would get lost in the tunnels ☐
- that he could not maintain his speed ☐
- that his lungs would collapse ☐
- that his pursuer would see him ☐
- that he would fall over in the dark ☐

2 1m

3 Look at the first paragraph.

...loud in his ears...

What does this tell us?

Tick **one**.

- Fin was very conscious of how loud his breathing seemed. ☐
- Fin's breathing drowned out all other sounds inside the tunnel. ☐
- The sound echoed all around the quiet, empty tunnel. ☐
- It felt like the pursuer was breathing down Fin's neck. ☐

3 1m

4 Look at the first paragraph.

Find and **copy two** words that give a sense of being confined.

1. _____

2. _____

4 1m

please turn over

TOTAL 4m

5 What reason does the writer suggest for Fin choosing the darker tunnel?

Tick **one**.

- He was not afraid of the dark. ☐
- He wanted to frighten his pursuer. ☐
- He knew the tunnels well. ☐
- He had planned his escape route. ☐
- He felt more protected in the dark. ☐

5 1m

6 *...some primitive instinct...*

What does this suggest about Fin's decision?

Tick **two**.

- He made an immature choice. ☐
- He was driven by the need to survive. ☐
- He left the decision to fate. ☐
- He made the decision without thinking. ☐
- He took the first option he saw. ☐
- He was confident he had made the right decision. ☐

6 1m

7 Fin did not use his flashlight.

Why?

Tick **one**.

- He did not want his pursuer to see where he was. ☐
- He was afraid of what he might see in the tunnel. ☐
- He was in too much of a panic to think clearly. ☐
- He trusted his instincts to find his way. ☐
- He could see well enough without it. ☐

7 1m

8 **Find** and **copy three** physical symptoms that demonstrate Fin's fear.

1. _____

2. _____

3. _____

8 2m

9 *... there was no way out of here.*

What does this show?

Tick **one**.

Fin had checked and knew for sure that he was trapped. ☐
Fin was in despair and was seeing the worst in the situation. ☐
Fin had recognised where he was so knew that there was no escape. ☐
Fin was certain his pursuer was definitely going to find him now. ☐

9
1m

10 Fin worried about some things that might happen to him in the tunnel but not others.

Put ticks to show which of the following were **Fin's worries**, **Fin's actual experiences** or **both**.

	Fin's worries	Fin's actual experiences	Both
being caught by his pursuer			
leading his pursuer into the dark			
being seen in the dark tunnel by his pursuer			
falling in the dark			
running into something solid			
dying down in the tunnels			

10
2m

11 In the last paragraph the writer describes how Fin was feeling.

What does the use of short questions show?

Tick **one**.

Fin had accepted that he needed help. ☐
Fin was feeling confused and scared. ☐
Fin was trying to plan his route out. ☐
Fin was relieved to have found a solution to his problem. ☐

11
1m

please turn over

TOTAL
9m

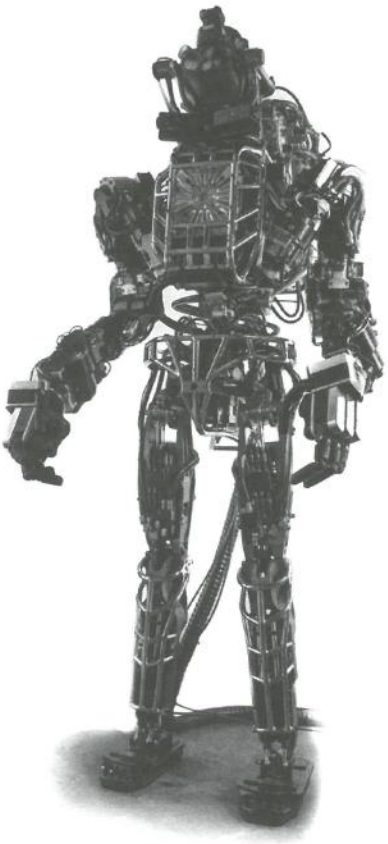
Agile robots

Computer scientists have created machines that have the balance and agility to walk across rough and rocky terrain. This makes them far more useful now in navigating human environments. Having robots that walk properly means they could be used in emergency rescue operations. They could also play a role in routine jobs such as helping elderly or physically disabled people with chores and everyday tasks in the home.

Being able to walk is actually an extraordinary achievement. Every step requires balance and the ability to adapt to instability in a split second. It requires quickly adjusting where your foot will land and calculating how much force to apply to change direction suddenly. No wonder then that, until now, robots have not been very good at it.

Breakthrough	Why it matters
Legged machines that stride over uneven or unsteady terrain.	Much of the world is inaccessible to wheeled machines but not legged ones.

Meet Atlas, a humanoid robot that can walk across rough terrain and even run on flat ground. Although previous robots were able to walk, they could not quickly adjust their balance; as a result, they were often awkward, and limited in practical value. Atlas is a robot that has an exceptional sense of balance and can stabilise itself with ease. It demonstrates the abilities that robots need to move around human environments safely and easily.



In the early 1980s, Marc Raibert led the way in creating machines with 'dynamic balance' – the use of continual motion to stay upright. More recently, Atlas has demonstrated dynamic balance by using high-powered hydraulics to move its body in a way that keeps it steady. The robot can walk across an unbalanced pile of rubble, walk briskly on a treadmill, and stay balanced on one leg when whacked with a 10kg wrecking ball. Just as you instinctively catch yourself when pushed, shifting your weight and repositioning your legs to avoid falling over, Atlas can sense its own instability and respond quickly enough to right itself.

Atlas is not ready to take on home or office chores: its powerful diesel engine is external and noisy, and its titanium limbs thrash around dangerously. But, when refined, it could perform repair work in environments too dangerous for emergency workers to enter, such as the control room of a nuclear power plant on the brink of a meltdown.

"If your goals are to make something that's the equivalent of a person, we have a way to go," Raibert says. But as it gets up and running, Atlas will not be a bad example to chase after.

1 **Find** and **copy two** non-emergency situations the new robots could be used in.

1. _____

2. _____

1
1m

2 Look at the second paragraph.

What does it tell us?

Tick **one**.

It is impossible to recreate walking in robots with motorised limbs. ☐
Walking requires the use of complex electronic mechanisms. ☐
Scientists do not fully understand the physical process of walking. ☐
Walking is more complex than we might think. ☐

2
1m

3 *No wonder then that, until now, robots have not been very good at it.*

What idea is conveyed by this sentence?

It is **not** surprising that ...

Tick **one**.

robots can do calculations as well as humans. ☐
walking robots have been developed. ☐
it has taken this long to create walking robots. ☐
robots can react as quickly as humans. ☐

3
1m

4 What is the function of the boxed text?

Tick **one**.

It provides additional but unrelated information. ☐
It highlights the key points covered in the article. ☐
It describes how the robots will be further developed. ☐
It explains the difficulties that scientists are yet to overcome. ☐

4
1m

please turn over

TOTAL
4m

5 How do these new robots overcome the problem of walking across unstable ground?

Tick **one**.

They detect obstacles in their path and plan a route around them. ☐
They measure their stride length to keep up a regular pace. ☐
They recognise changes in the terrain and adapt to them. ☐
They avoid walking across uneven ground surfaces. ☐
They calculate the distance that they need to cover. ☐

5
1m

6 Robots respond automatically to their environment.

Which word describes the equivalent response in humans?

Tick **one**.

dynamically ☐	hydraulically ☐	briskly ☐
continually ☐	steadily ☐	instinctively ☐

6
1m

7 Look at the sections about Atlas.

Put ticks to show which statements show what **Atlas can do now** and what features are **predicted for future robots**.

	Atlas can do now	Predicted for future robots
run on uneven ground		
use dynamic balance		
work efficiently in dangerous environments		
work safely around humans		
walk briskly on a treadmill		
stay balanced when pushed		

7
2m

8 Which statement best reflects Marc Raibert's opinion?

Tick **one**.

We are on the verge of creating robots that are as skilled as humans. ☐
Atlas is the closest we will get to creating a human-like robot. ☐
We should not try to make robots any more human-like than Atlas. ☐
Further development is needed to be able to build robots as skilled as humans. ☐

8
1m

9 Put ticks to show which statements are **fact** and which are **opinion**.

	Fact	Opinion
Some robots can run over flat ground.		
Before Atlas, robots were not very useful.		
Newer robots are less likely to fall over than older ones.		
It is essential to develop robots for emergency rescues.		
Dynamic balance technology is amazing.		
Humanoid robots are of little practical value.		

9
2m

10 What are the **main** purposes of this text?

Tick **two**.

- to highlight the dangers of working in robotics ☐
- to illustrate the potential benefits of these new robots ☐
- to describe how robots do jobs currently done by humans ☐
- to explain in detail how the robots function ☐
- to report the latest developments in robotics ☐
- to promote the use of robots in the home and workplace ☐

10
1m

11 Which is the most appropriate headline for this article?

Tick **one**.

- Unstable robot disaster! ☐
- Emergency rescue services saved by robots ☐
- First robot to pass office job interview ☐
- In the robotics race, Atlas is the one to beat ☐
- Robots on brink of meltdown! ☐

11
1m

End of test. Please check your work.

TOTAL
9m

Acknowledgements

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'Fun Facts About Blue Whales' from Blue Whale Project
https://sites.google.com/site/bluewhaleproject/Home/fun-facts-about-the-project

'The descent into darkness' taken from *The Reckoning* by James Jauncey (Young Picador, 2008)

'Agile robots' taken from
'Agile Robots' by Will Knight in *MIT Technology Review* (2014)
www.technologyreview.com/featuredstory/526536/agile-robots

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