

A HISTORY OF TIME



Before time was measured in seconds, minutes and hours, people relied on the sun, the moon and the seasons. Work started at sunrise and finished at sunset. Changes in the seasons told farmers when to plant and when to harvest. As there were no clocks, it would have made no sense to say: "I'll meet you at two o'clock."

People watched how the sun seemed to move across the sky. They realised that smaller amounts of time could be measured by the changing position of the shadow of a stick pushed into the ground: the sundial! This led to more accurate versions. An Egyptian sundial from 800 BC still exists, but they were known and used by astronomers even before this date.

The trouble with sundials is that they are no use at night or when the sun isn't shining. Also, at different times of the year, the sun is higher or lower in the sky, affecting the shadow formed by the sundial. The Greeks and others tried to solve this problem. They invented the *clepsydra* or water clock. The problem with this, however, was that trying to regulate the drips of water that fell into a tank, which then turned the clock pointer, was impossible.

Their popularity with some scientists and wealthy people continued, but they saw them as toys rather than something that told the time.



The hourglass works in a similar way to the water clock, using sand instead of water. People often used them to time the length of sermons from the church pulpit. They are still used today as egg-timers and in board games. They have the advantage of being able to be used at night by the light of the moon or a candle.

The creation of an accurate mechanical clock was the dream of astronomers and inventors in the 13th and 14th centuries. The clock in Salisbury Cathedral, installed around 1386, is still working. Having no clock face, it operates a bell that strikes the hours. (The word *clock* is similar to the French word *cloche*, meaning *bell*.)

The invention of mechanical clocks not only led to the clocks that we are familiar with today, but also to our idea of time itself. With the more recent addition of digital clocks and watches, as well as other displays on mobiles, computers, car dashboards and in public places, we are more aware than ever of time passing, time lost, time wasted and no time to do everything that we would like. Are we like the White Rabbit in *Alice in Wonderland* – always in a hurry?

The problem with water clocks was 'trying to **regulate** the drips of water that fell into the tank'. **Circle** a word that is similar in meaning to **regulate**.

stop

control

design



1 mark

Water clocks were not good at telling the time. The text suggests the type of person who continued to enjoy them.

Write down **one** type of person.

.....



1 mark

Give an example from the text of how hourglasses are used today.

.....



1 mark

In what way is an hourglass better than a water clock?

.....

.....



1 mark

One of the earliest mechanical clocks was installed in Salisbury Cathedral. How is it different from clocks today?

.....

.....



1 mark

SOME TIME UNDERGROUND

PART I

"I don't want to waste any time telling you to stop chatting and listen," says the guide. Not that anybody, apart from Luke, that is, is chatting. His voice is bouncing round the cavernous stone mine like a mad bunny. They call them quarries here in Bath, but they're like underground mines and just a tad spooky, if you ask me.

"He's looking at me, Joanie. I never said a word."



"Yeah, right." There's something about my own echo – the words circling round and coming back that makes my head buzz. Or maybe it's the thought of being underground and standing next to a water barrel for the horses that used to haul out the blocks of limestone. Heavy blocks that were shaped and cut to build all the houses here, ever since Roman times. All of those houses above the earth that left miles and miles of corridors and caverns under the earth. It's making my brain go funny.

"Of course, where you're all standing was once an ocean. Perhaps your teacher has already explained that limestone is the result of dead sea creatures sinking to the bottom of the ocean, layer upon layer." The voice of the guide sounds far away.

The water barrel is encrusted with its own stalactites and stalagmites. Years of rainwater seeping through the limestone roof of this man-made cave. I have to put my hands on it.

"Joanie?" says Luke. I can see his outline, but his face is in shadow. "You all right?" "These mine workings," says the guide, "have been stable for a hundred and fifty years, but, in case of emergencies, I'll blow this whistle and you will all walk, I said walk, behind me to a safe place. And another thing..."

I can hear some of what he is saying, but there is a tingling in my fingers, spreading up my arms to my neck. He's talking about how these spaces beneath the earth were used for storage, and, especially, for ammunition during the war. And there's something else.

"A ghost, Joanie. Did you hear what he said about an old miner and his horse?"

There is a sudden and ear-shattering rumble of falling rock, or as if a train were racing towards us – straight towards us – down one of the many tunnels. There is panic! The whistle! Elbows, scuffling feet, screams, the whistle, rumbling. I'm pushed to the floor. Then silence. No train, no rock fall and no one. I'm alone. Completely alone.

Who are being shown by the guide round the underground limestone quarries?

.....



1 mark

When Luke says, 'I never said a word,' why does Joanie say, 'Yeah, right'?

.....

.....



1 mark

How have these underground caverns been created?

Tick one:

natural caves where people have lived

holes in the rock eroded by the sea

rock has been removed to build houses



1 mark

In the 3rd paragraph, beginning '**Yeah, right**', there are **two** phrases describing how Joanie feels that suggest some strange adventure is about to happen to her.

What are those phrases?

1.

.....

2.

.....



2 marks

Write down **one** of the clues you used to answer **question 9**.

.....
.....



1 mark

The writer doesn't say who the **two** are who help Joanie when she is lost. Who do you think they are?

1.

2.



2 marks

At the end of the story, Luke is puzzled as Joanie smiles and touches the metal button in her pocket.

We don't know what she is thinking.

What could she be thinking?

.....
.....
.....



3 marks