

FLEYDO ENGLISH SCHOOL

Reading Challenge

Why Is the Sky Blue?

You see it every day. But do you know why?

Level: A1

Skill: Reading

Duration: ~10 min

Age: Teens (11-16)

Topic: Science

Vocabulary: 15 words

The Article

Look up. What colour is the sky? On a clear day, the answer is easy. The sky is blue. But why? The sun is not blue. The air is not blue. Clouds are white. So where does the blue come from? People asked this question for thousands of years. The answer is about light. And it is very beautiful.

Sunlight Is Not White

The **sunlight** looks white. But it is not really white. White light is a mix of many colours. All the colours of the rainbow are inside sunlight. Red. Orange. Yellow. Green. Blue. Violet. All together.

How do we know this? In 1666, a **scientist** named Isaac Newton did a famous **experiment**. He put **sunlight** through a glass triangle called a prism. The light came out the other side — but it was not white any more. It was a rainbow. Red, orange, yellow, green, blue, violet. All the colours, side by side. Newton showed that white light is made of all colours mixed together. We call this the **spectrum**.

Colours Are Waves

Light travels in waves. Think of the sea. Waves in the sea go up and down. Light waves are similar, but much, much smaller. You cannot see them with your eyes.

Each colour has a different **wavelength**. Red light has long waves. Blue light has short waves. Violet has the shortest waves. This is important. Short waves behave differently from long waves.

The Atmosphere

The Earth has an **atmosphere**. This is the air around our **planet**. The atmosphere is made of gases. Mostly nitrogen and **oxygen**. These gases are made of tiny, tiny **particles**. You cannot see them. But they are there. Billions and billions of them.

When **sunlight** enters the atmosphere, it meets these tiny particles. And something happens. The light does not go straight through. It bounces. It changes direction. The particles **scatter** the light — they send it in many directions. But here is the key: they do not scatter all colours the same way.

Blue Wins

Short waves **scatter** more than long waves. Blue light has short waves. Red light has long waves. So blue light scatters much more than red light. How much more? About ten times more.

When sunlight enters the atmosphere, the blue light bounces around in every direction. It goes left. It goes right. It goes up. It goes down. It fills the whole sky. When you look up, you see blue light coming from everywhere. That is why the sky looks blue. The blue light is scattered all across the sky.

Red and orange light do not scatter much. They go straight through the atmosphere. You do not see them — they pass over your head without bouncing around. Only blue light fills the sky.

But wait. Violet light has even shorter waves than blue. Violet should scatter even more. So why is the sky not violet? Two reasons. First, the sun makes more blue light than violet light. Second, our eyes are better at seeing blue than violet. So we see blue. The sky is actually a little bit violet too, but our eyes do not notice.

Sunrise and Sunset

In the morning and evening, the sky changes colour. It turns orange. Then red. Then pink. Then dark. Why?

At sunset, the sun is low in the sky, near the **horizon**. The sunlight must travel through much more atmosphere to reach your eyes. Much, much more. The light travels a longer path.

On this long path, the blue light scatters away. All of it. It bounces away before it reaches you. What is left? The long-wave colours. Red. Orange. Yellow. These colours travel the long path without scattering. They reach your eyes. The sky turns red and orange. That is a sunset.

This is why sunsets are different every day. If there is dust in the air, the reds are deeper. If there are clouds, the light **reflects** off them and creates pink and purple. After a volcanic eruption, sunsets can be extremely red for months. The **particles** from the volcano scatter even more light.

Other Skies

The sky is blue on Earth. But what about other places?

The Moon has no **atmosphere**. No air. No particles. No scattering. So the sky on the Moon is always black. Even during the day. Astronauts on the Moon see a black sky with stars. And the sun is a bright white circle. No blue. No pink. No sunset. Just black and white.

Mars has a thin atmosphere. It is made of carbon dioxide, not oxygen. The atmosphere has a lot of fine dust. The dust particles on Mars are bigger than the particles on Earth. Big particles scatter light differently. They scatter red and orange light more. So the sky on Mars is the opposite of Earth. During the day, the Mars sky is a

dusty orange-brown colour. At sunset on Mars, the sky turns blue. Yes — blue. Mars sunsets are blue. Earth sunsets are red. It is completely backwards.

A **scientist** named Lord Rayleigh explained sky colour in 1871. He worked out the mathematics. He showed that small particles scatter short waves more than long waves. We call this "Rayleigh scattering." It explains blue skies, red sunsets, and even why the ocean looks blue from space.

Fun Facts About Sky Colour

The sky is not the same blue everywhere. Near the **horizon**, the sky is lighter — almost white. This is because the light near the horizon travels through more air. It scatters many times. The blue mixes with other colours and becomes pale. Straight above you, the sky is a deeper blue. Less air. Less mixing. Purer colour.

On a high mountain, the sky is even darker blue. There is less atmosphere above you. The air is thinner. Less scattering. The blue is stronger. Pilots and astronauts see a very dark blue sky. And at the edge of space, the blue becomes black.

Even shadows have colour. On a sunny day, look at a **shadow** on white snow. The shadow is not grey. It is blue. Why? Because the shadow is lit by the blue sky, not by the sun. The blue light from the sky fills the shadow. Artists know this. They paint shadows blue, not black.

Looking Up

The blue sky is so normal that we forget it is special. We see it every day. We do not think about it. But the blue sky is a gift from physics. It is the result of tiny particles and tiny waves working together, billions of times every second, to paint the air above us blue.

Isaac Newton saw a rainbow in a beam of light and asked why. Lord Rayleigh looked at the sky and worked out the answer. And now you know it too. The next time someone asks you, "Why is the sky blue?" — you can tell them. It is one of the simplest and most beautiful answers in all of science. Short waves scatter more. That is it. That is the whole secret. The sky is blue because blue light bounces.

Vocabulary Cards

Comprehension Quiz

Key Vocabulary

Word	Meaning
Sunlight	The light that comes from the sun
Atmosphere	The air around the Earth
Scatter	To go in many different directions
Wavelength	The distance between waves of light or sound
Particle	A very, very small piece of something
Horizon	The line where the sky and the land or sea meet
Spectrum	All the colours of light together, from red to violet
Ray	A thin line of light from the sun or a lamp
Reflect	To send light back, like a mirror does
Shadow	A dark shape on the ground when something blocks the light
Planet	A large round object in space that goes around a star
Oxygen	A gas in the air that we need to breathe
Scientist	A person who studies how things work
Experiment	A test to find out if something is true
Visible	Something you can see with your eyes

Comprehension Quiz

1. What colour does the sky look on a clear day?

- A) Red
- B) Blue
- C) Green
- D) Yellow

2. Why is the sky blue?

- A) Because the sea is blue
- B) Because blue light scatters more than other colours in the atmosphere
- C) Because someone painted it
- D) Because the sun is blue

3. Why is the sky red or orange at sunset?

- A) Because the sun changes colour
- B) Because sunlight travels through more atmosphere, so blue light scatters away and only red and orange reach our eyes
- C) Because the Earth gets hot in the evening
- D) Because clouds turn red at night

4. What colour is the sky on the Moon?

- A) Blue, like on Earth
- B) Black, because the Moon has no atmosphere to scatter light
- C) White
- D) Purple

5. What happens when sunlight goes through a glass prism?

- A) The light disappears
- B) The light splits into all the colours of the rainbow
- C) The light becomes black
- D) The glass breaks

Answer Key

#	Ans	Question
1	B	What colour does the sky look on a clear day?
2	B	Why is the sky blue?
3	B	Why is the sky red or orange at sunset?
4	B	What colour is the sky on the Moon?
5	B	What happens when sunlight goes through a glass prism?

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