

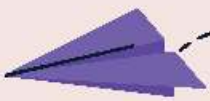
Alavi



EUREKA²



Compiled by: Farahnaz Fayaz
Seyedeh Farideh Saneie





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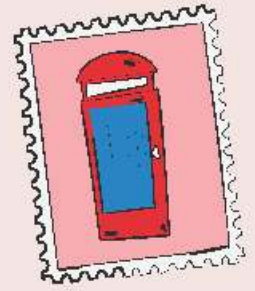
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INTRODUCTION



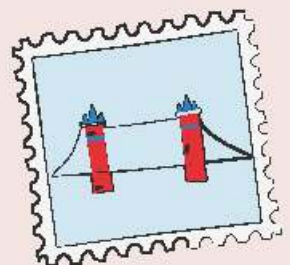
Eureka, is inspired by the ancient Greek word meaning “I have found it!” This exclamation of joy and discovery is famously attributed to the mathematician Archimedes, capturing the essence of intellectual breakthroughs. For Alavi students, Eureka represents the excitement and satisfaction of acquiring Academic English while raising scientific curiosity within a wide range of topics—from biological and historical concepts to fashion and style—broadening their horizons and uncovering limitless opportunities. Just as Archimedes celebrated his discovery, students will experience their own moments of triumph as they progress on this journey.



In today's interconnected world, developing skills in Academic English is no longer a luxury—it is an essential ingredient for success in education, career, and global citizenship. As the language of research, innovation, and higher education, Academic English serves as the foundation for communicating complex ideas clearly and effectively. For Alavi students, this proficiency goes beyond mere linguistic ability; it opens doors to prestigious universities, access to cutting edge knowledge, and participation in meaningful intellectual discourse.



The 21st century demands skills that extend far beyond rote memorization. Critical thinking, problem solving, collaboration, and digital literacy are at the heart of modern education. Academic English supports these competencies by fostering the ability to analyze, synthesize, and articulate ideas in diverse formats. Alavi schools recognize that equipping students with Academic English not only enhances their academic performance but also prepares them to thrive in competitive global environments.



Eureka is designed with the unique needs of Alavi students in mind. By incorporating real world examples, research based practices, and engaging topics, it provides a comprehensive framework for developing language skills at an academic level. Through this journey, students will not only build confidence in their language abilities but also cultivate a mindset that values learning, adaptability, and excellence—qualities essential for success in the 21st century.

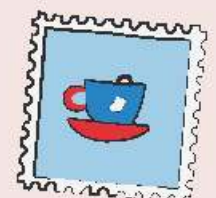
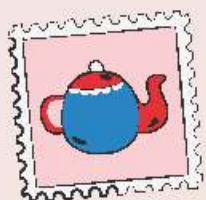




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Chapter 1

Nutrition





You Are What You Eat?

Vitamins Functions and Deficiency Effects

A

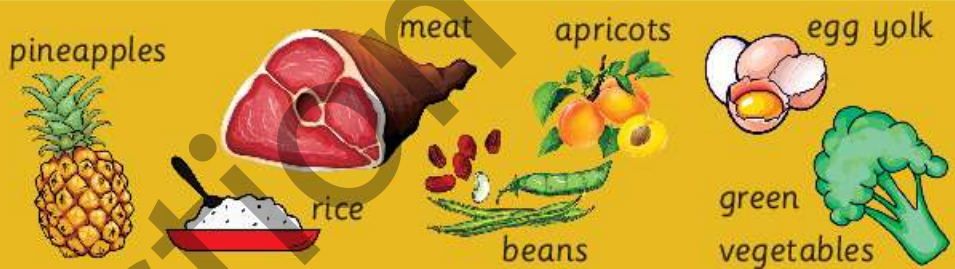


✓ Vitamin A keeps the eyes healthy.

✗ Lack of vitamin A can lead to eye problems.



B1

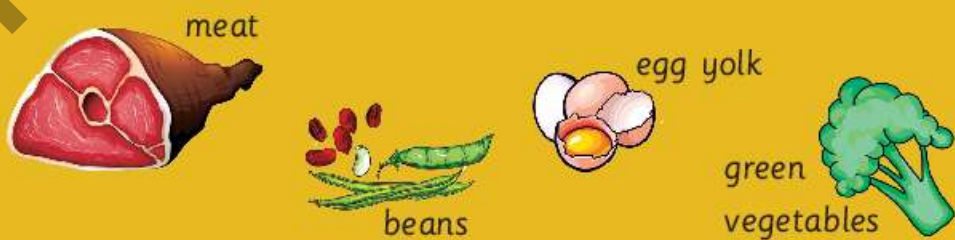


✓ Vitamin B1 keeps your energy levels up and supports a healthy nervous system.

✗ Lack of vitamin B can lead to diseases such as anemia. You may feel tired or weak.

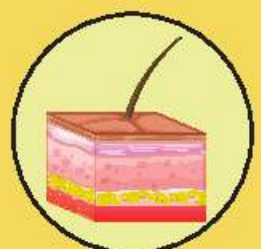


B2



✓ Vitamin B2 keeps the skin healthy.

✗ Lack of vitamin B2 can lead to symptoms like sore throat or cracks on the skin, especially around the mouth..



C



- ✔ Vitamin C keeps the skin, gums and blood vessels healthy.
- ✘ Lack of vitamin C can lead to skin problems. Your gums may start bleeding and you easily get bruises.



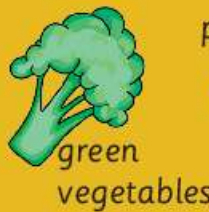
D



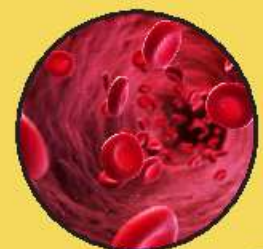
- ✔ Vitamin D helps your body use calcium to make your bones and teeth strong.
- ✘ Lack of vitamin D can lead to bone problems.



K



- ✔ Vitamin K helps your body stop bleeding when you get a cut.
- ✘ Lack of vitamin K can lead to blood problems.



THE VITAMINS

Vitamin A has a mission
To give to you strong bones and vision

Vitamin D is from the sun
And helps the mineral calcium

Vitamin E always goes zoom
To help your system stay immune

Vitamin K helps you clot
That way you won't bleed a lot

Vitamin C won't let you get sick
You'll pump iron more quick...ly

B Vitamins one, two, three; five, six, seven
Work to keep your engine revvin'

Folic acid is number nine
Keeps your DNA working fine

Twelve is needed you will see
For nerves and blood and energy



Chapter 2

Cinematography



Let's Catch a Movie!



What kind of movie do you like?

Action Movies

Action movies are full of exciting scenes with a lot of movement and physical activity. They often have a lot of fight scenes or chase scenes.



Comedy Movies

Comedy movies are meant to make you laugh and feel happy. They often have funny characters, jokes, and humorous situations.

Classic comedy actors include Jim Carrey and Charlie Chaplin.

Drama Movies

Drama movies are serious and emotional. They often focus on deep human feelings.

They can be about real-life situations and may make you cry or think deeply.

Famous drama movies include "The Separation".



Science Fiction Movies

Science fiction movies are about the future or things that don't exist yet, like aliens or advanced technology.

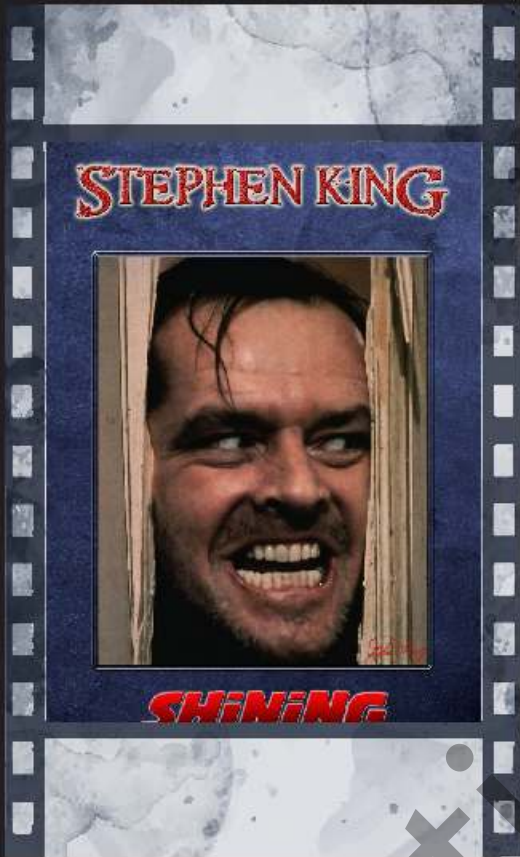
Famous SCI-FI movies include "Star Wars".

Fantasy Movies

Fantasy movies take us to magical worlds with mythical creatures and enchanting adventures.

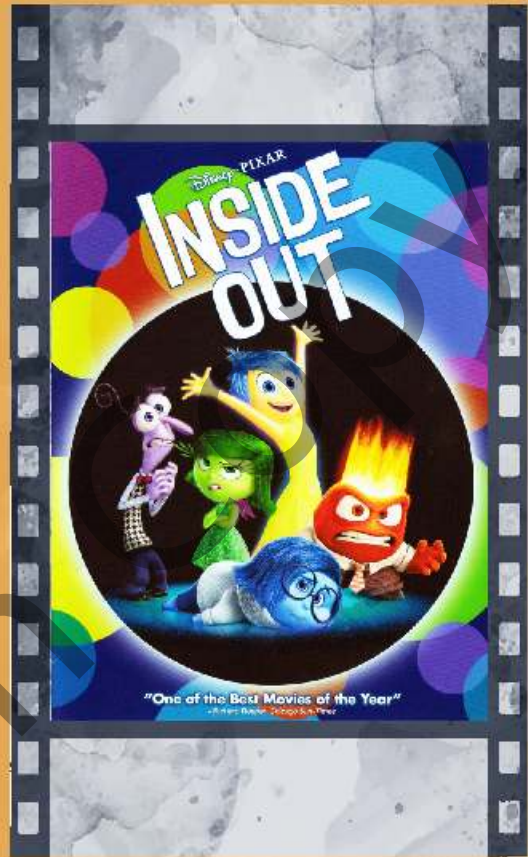
They often involve wizards, dragons, or other magical beings. Popular fantasy films include “The Lord of the Rings” and “Harry Potter.”





Horror Movies

Horror movies are meant to scare and thrill us. They often have monsters, ghosts, or murderers. Famous horror movies include "The Shining."



Animation Movies

Animation movies use drawings, computer graphics, or stop-motion to tell a story. They are not just for kids – many adults enjoy animated films, too.

Beloved animated movies include "Inside Out" and "Frozen."



Adventure Movies

Adventure movies are all about excitement, exploration, and taking risks.

They often involve treasure hunting, daring journeys, or quests.

Popular adventure films include “Indiana Jones” and “Pirates of the Caribbean.”



Musical Movies

Musical movies combine storytelling with songs and dancing.

Characters often express their emotions through music.

A photograph of Martin Scorsese, an older man with white hair and glasses, wearing a dark blue suit jacket over a dark blue shirt. He is sitting in a black metal chair with a light-colored cushion. The background is a lush green wall of ivy with some small pink flowers. The name "Martin Scorsese" is written in blue text in the upper right corner.

Martin Scorsese

Looking for a job in the film industry?

1. Director

The director is like the captain of the ship, responsible for overseeing the entire filmmaking process.

They guide the actors and make decisions.



2. Producer

Producers handle the business side of the film, including budgeting and financing.

3. Screenwriter

The screenwriter is the storyteller who creates the script or screenplay.

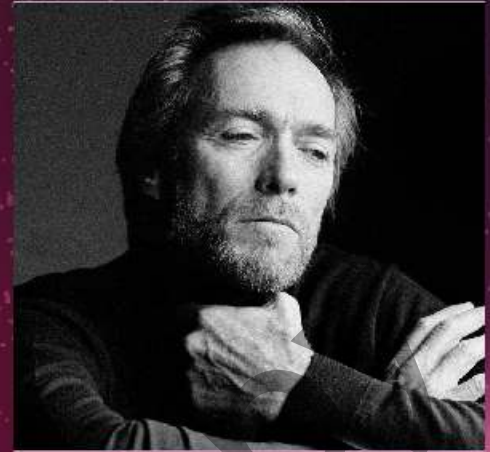
They develop the plot, characters, and dialogues.

4. Cinematographer

(Director of Photography)

The cinematographer is in charge of the camera and lighting crews.

They decide how the film looks, including the framing, lighting, and camera angles.



Clinton Eastwood



Woody Allen



Sir Roger Deakins



5. Costume Designer

The costume designer selects and creates the clothing and costumes for the characters.



6. Sound Designer

Sound designers create the auditory part of the film, including music, sound effects, and dialogue.



7. Makeup Artist

Makeup artists are responsible for the appearance of the actors, including their hair and makeup.



8. Special Effects (SFX) Supervisor

SFX supervisors handle visual effects in the film. They create explosions and monsters.

Chapter 3

Oceanology



Inspre Copy

Beyond the Blue

Oceanology, also known as oceanography, is the study of the ocean. It involves exploring and understanding everything about the ocean, including its physical properties like waves and currents as well as the creatures and ecosystems that live within it. Oceanographers also investigate human interactions with the ocean, such as pollution and its impact on marine life. In simple terms, oceanology is all about learning about the big blue sea and everything in it.







Pacific Ocean

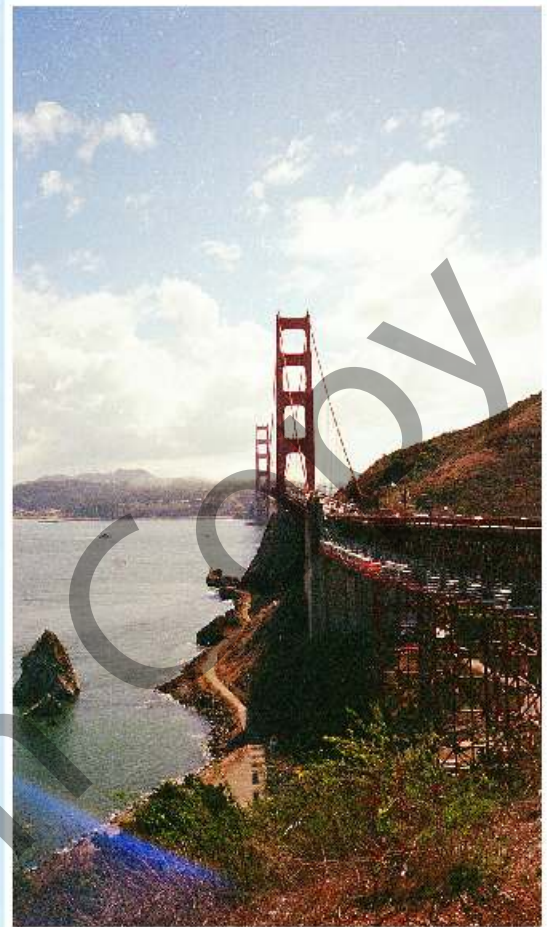


Location: The Pacific Ocean is the largest ocean and is located between the continents of Asia and Australia to the west, and the Americas to the east.

Important Characteristics: It's known for its vast size and depth, covering about one-third of the Earth's surface.

The deepest part of the world's oceans is called The Mariana Trench which is located in the western Pacific Ocean. It is approximately 11 kilometers (7 miles) deep and is a quite mysterious place.

Important Animals: The Pacific Ocean is home to a wide variety of marine life, including whales, dolphins, sharks, sea turtles, and countless species of fish.



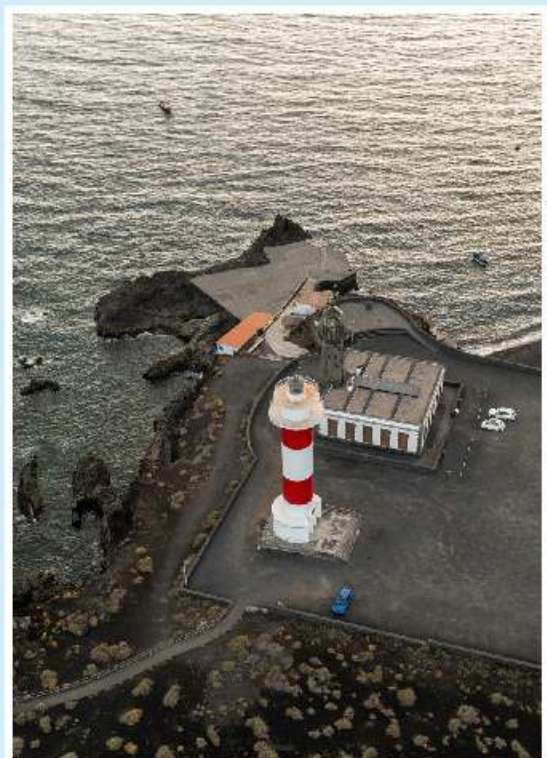
Atlantic Ocean



Location: The Atlantic Ocean is situated between the continents of Europe and Africa to the east and the Americas to the west.


Important Characteristics: It's the second-largest ocean in the world and is known for its strong ocean currents, including the Gulf Stream.


Important Animals: The Atlantic Ocean supports diverse marine life, including various species of fish like cod, tuna, and herring, as well as marine mammals like seals and whales.




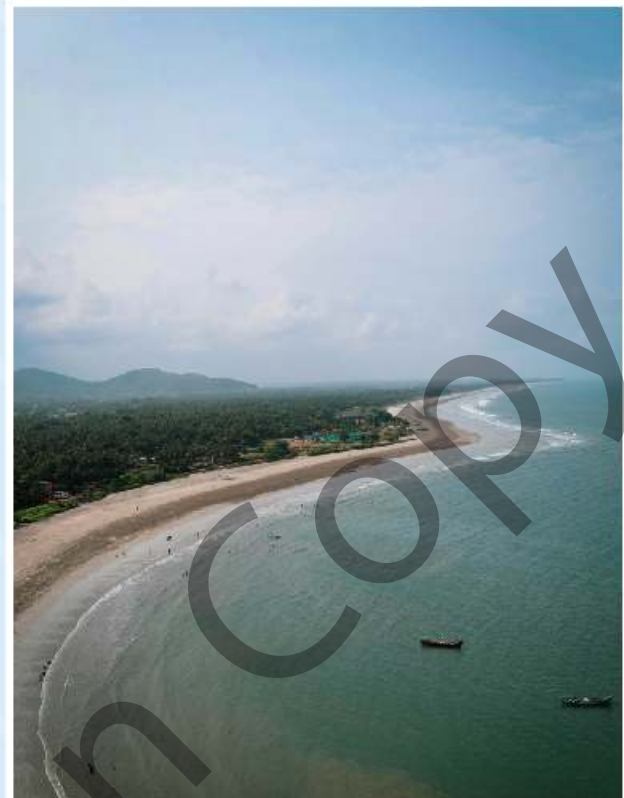


Indian Ocean


 **Location:** The Indian Ocean is located between Africa to the west, Asia to the north, Australia to the east, and the Southern Ocean to the south.


 **Important Characteristics:** It's the third-largest ocean and is known for its warm waters and monsoon weather patterns.


 **Important Animals:** The Indian Ocean is home to unique marine species such as the dugong, manta rays, whale sharks, and numerous coral reef ecosystems.



Southern Ocean

 **Location:** The Southern Ocean surrounds Antarctica, extending from the Antarctic coastline to about 60 degrees south latitude.

 **Important Characteristics:** It's the smallest and coldest ocean, characterized by strong winds, icebergs, and extreme conditions.

 **Important Animals:** The Southern Ocean is rich in marine life, including various species of seals, penguins, whales (like the blue whale).





Arctic Ocean



Location: The Arctic Ocean is located around the North Pole, bordered by northern North America, Europe, and Asia.



Important Characteristics: It's the smallest and shallowest ocean, covered by sea ice for much of the year. The Arctic is experiencing rapid climate change, resulting in shrinking ice cover.



Important Animals: The Arctic Ocean is home to polar bears, walruses, seals, and various species of whales and seabirds that are adapted to cold environments. It also supports unique ecosystems that exist around the sea ice.

Chapter 4

Automotive Engineering





Need a ride?

Automotive Engineering

Cars are complex machines designed to transport people and goods efficiently. They have various mechanical and electrical components that work together to make the car move and work properly. Understanding the main parts of a car helps us appreciate the engineering that goes into these everyday vehicles.





Parts of a car



Engine: This is like the heart of the car. It makes the car go by using fuel. When the engine runs, it gives power to the car to move.



Wheels: These are the round parts at the bottom of the car that touch the road. The wheels help the car roll and drive.



Steering Wheel: This is the part you hold to turn the car left or right. It helps the driver guide the car in the direction they want to go.



Pedals: Cars have pedals that the driver presses with their feet. The main pedals are the brake pedal, the accelerator (or gas pedal), and in some cars, a clutch pedal for changing gears.



Brakes: These are special parts that help the car stop. When you press the brake pedal, the car slows down or stops.





Seats: These are where people sit inside the car. Some cars have front seats and back seats for passengers.



Headlights: These are the lights at the front of the car that help you see when it's dark. They also help other drivers see you.



Tail Lights: These are the red lights at the back of the car. They show when you're stopping or turning so other drivers know what you're doing.



Windows: These are the glass parts that let you see outside the car. They can roll up and down so you can get fresh air or stay warm inside.



Doors: These let people get in and out of the car. They open and close to keep everyone safe inside.



Fuel Tank: This is where you put the fuel (like gasoline) to make the car go. It's usually found at the back of the car.

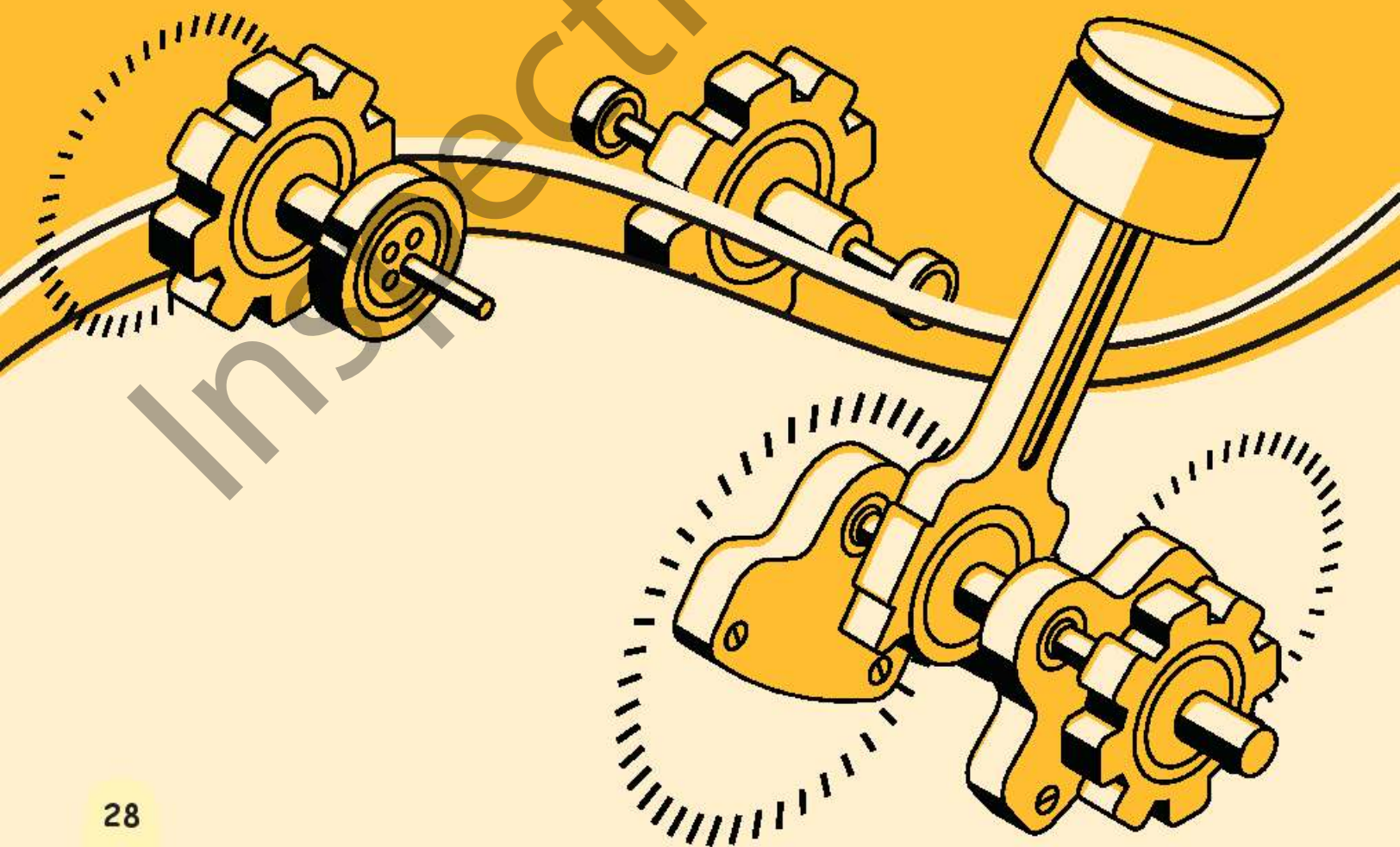


How the Engine Works

The engine is like the heart of the car. It takes fuel, usually gasoline, and burns it to create power. Here's how it works in simple steps:

- 1. Fuel and Air Mix:** The engine mixes gasoline with air.
- 2. Spark:** A spark from a spark plug lights the fuel and air mix.
- 3. Explosion:** The mix burns and makes a small explosion.
- 4. Push:** This explosion pushes a part called a piston.
- 5. Turn:** The piston moves up and down, which turns a crankshaft.
- 6. Power:** The turning crankshaft gives power to the car's wheels.

So, the engine turns fuel into power, making the car go!





New Generations

Traditional cars run on gasoline, which produces harmful gases that contribute to air pollution and climate change. This is why we need a new generation of cars. Electric and hybrid cars produce less or no harmful gases, making the air cleaner and helping to slow down global warming. Also, they can be more cost-effective because they use electricity, which can be cheaper than gasoline.





Electric Cars

Electric cars use electricity instead of gasoline to make the car go. They have a big battery that stores electricity. Here's how they work:

1. **Battery:** The battery stores electricity.
2. **Motor:** The electricity powers an electric motor.
3. **Wheels:** The motor makes the wheels turn.

Electric cars need to be charged by plugging them into an electric outlet.

Hybrid Cars

Hybrid cars use both gasoline and electricity to make the car go. They have a gasoline engine and an electric motor. Here's how they work:

1. **Gasoline Engine:** The engine uses gasoline to make power.
2. **Electric Motor:** The motor uses electricity from a battery.
3. **Switching:** The car can switch between the engine and the motor, or use both together.

Hybrid cars save fuel by using the electric motor when possible.



Chapter 4

Mathematics and Geometry





Pirates of the Caribbean

Lines are fundamental elements in geometry, characterized by their length and direction. Here are some common types of lines:

Straight Line:

A line that extends indefinitely in both directions and does not curve.



Curved line:

A curved line is a type of line that does not follow a straight path.



Ray:

A part of a line that has one endpoint and extends infinitely in one direction.



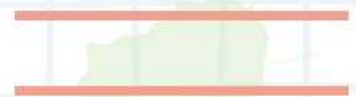
Line Segment:

A part of a line that has two endpoints.



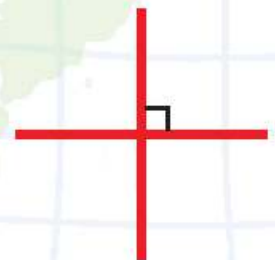
Parallel Lines:

Lines in the same plane that do not intersect. They remain equidistant from each other at all points.



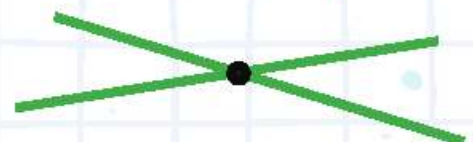
Perpendicular Lines:

Lines that intersect at a right angle (90 degrees).



Intersecting Lines:

Lines that cross or meet at a common point.





Common 2D Shapes

Square

- All sides are equal in length.
- All angles are right angles (90 degrees).
- Opposite sides are parallel and equal in length.



Rectangle:

- Opposite sides are equal in length.
- All angles are right angles (90 degrees).
- Opposite sides are parallel.



Circle:

- No straight sides; consists of a curved boundary.
- No angles.
- All points on the boundary are equidistant from the center.



Parallelogram:

- Opposite sides are equal in length.
- Opposite angles are equal.
- Opposite sides are parallel.



Triangle:

- Three sides.
- Three angles.
- The sum of interior angles is always 180 degrees.



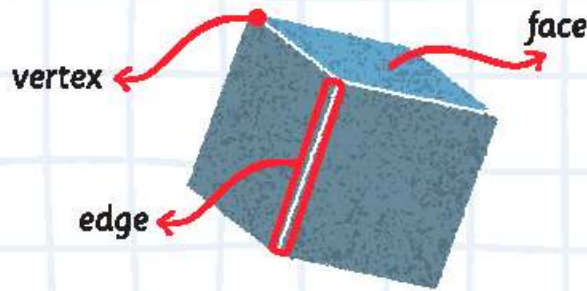
Trapezoid

- At least one pair of parallel sides.
- No sides are equal in length (unless it's an isosceles trapezoid).








Common 3D Shapes






Cube:

-  All faces are squares.
-  All edges are equal in length.
-  All angles are right angles.



Sphere:

-  A perfectly round shape.
-  No edges or vertices.
-  All points on the surface are equidistant from the center.





Cylinder:

-  No vertices.
-  Two circular faces.



Pyramid (with a square base):

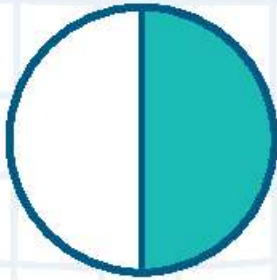
-  Five faces.
-  Five vertices.





Fractions

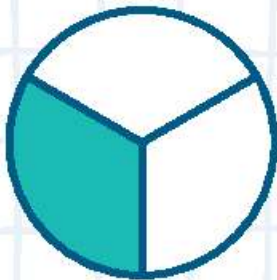
This is how we read fractions



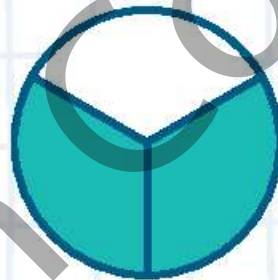
$\frac{1}{2}$: half / one half



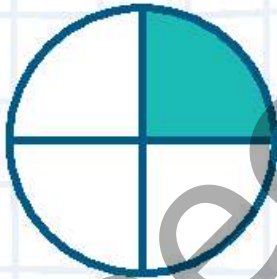
$\frac{1}{5}$: one fifth



$\frac{1}{3}$: a third/ one third



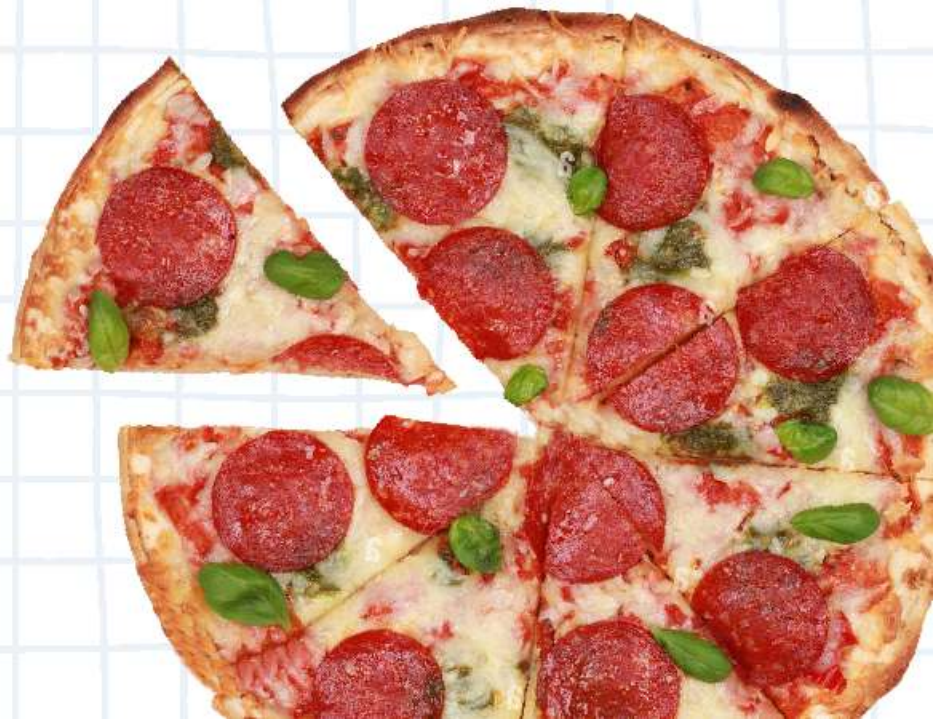
$\frac{2}{3}$: two thirds



$\frac{1}{4}$: a quarter/ one quarter




$\frac{3}{7}$: three sevenths






This is how we read mathematical equations.

Addition


$$2 + 3 = 5$$


Two plus three equals five

Subtraction


$$8 - 4 = 2$$


Eight minus four equals two.

Multiplication


$$2 \times 3 = 6$$

Two times three equals six.
Two multiplied by three equals six.

Division


$$4 \div 2 = 2$$

Four divided by two equals two.

$$2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$$

Two to the power of five equals thirty two.

$4^2 = 16$: Four squared equals sixteen

$4^3 = 64$: Four cubed equals sixty four

$$2 \times (\text{Length} + \text{Width})$$

Two times open parenthesis length plus width close parenthesis.

Two times the sum of the length and width.

$$\frac{1}{2} \times \text{Base} \times \text{Height}$$

one-half times base times height



Area

Area is the amount of space inside a shape.

For example, if you want to find the area of your bedroom, you're measuring how much space is inside the room.

Perimeter

Perimeter is the distance around the outside of a shape.

For example, if you want to know how much fencing you need to enclose your garden, you're measuring the perimeter of the garden.

Square



$$\text{Area} = \text{Side} \times \text{Side}$$

$$\text{Perimeter} = 4 \times \text{Side}$$

Rectangle



$$\text{Area} = \text{Length} \times \text{Width}$$

$$\text{Perimeter} = 2 \times (\text{Length} + \text{Width})$$

Circle



$$\text{Area} = \pi \times \text{Radius}^2$$

$$\text{Perimeter} = 2 \times \pi \times \text{Radius}$$

Triangle



$$\text{Area} = \frac{1}{2} \times \text{Base} \times \text{Height}$$

$$\text{Perimeter} = \text{Side1} + \text{Side2} + \text{Side3}$$

Parallelogram



$$\text{Area} = \text{Base} \times \text{Height}$$

$$\text{Perimeter} = 2 \times (\text{Base} + \text{Side})$$

Trapezoid



$$\text{Area} =$$

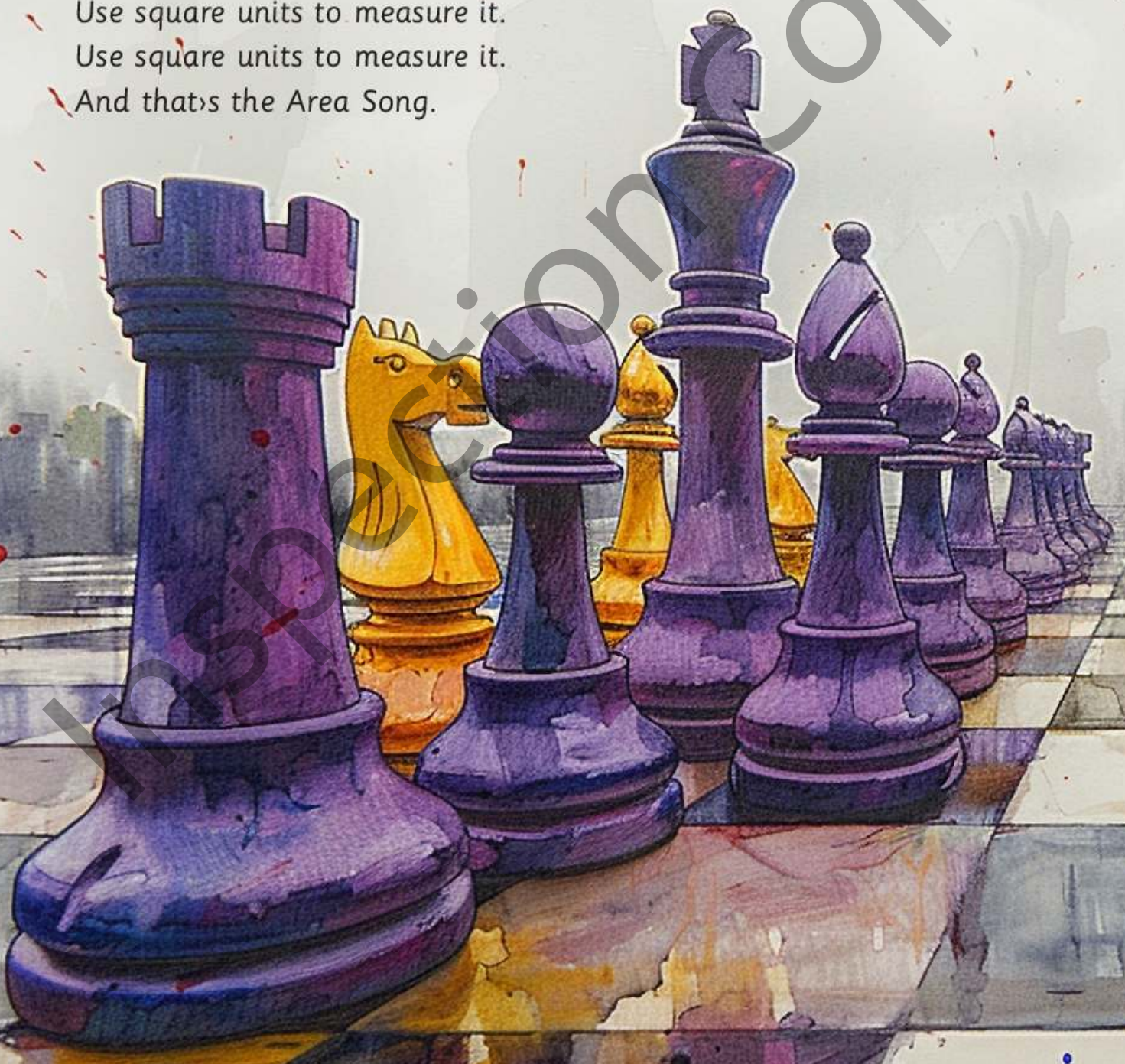
$$\frac{1}{2} \times (\text{Sum of parallel sides}) \times \text{Height}$$

$$\text{Perimeter} = \text{Sum of all four sides}$$

AREA POEM

Length times width is area
Length times width is area
Length times width is area
Area's the whole inside.

Use square units to measure it.
Use square units to measure it.
Use square units to measure it.
And that's the Area Song.





Perimeter Song

Perimeter is around.

Perimeter is around.

Oh, oh, don't you know,

Perimeter is around.

You add up all the sides.

You add up all the sides.

Oh, oh, don't you know,

You add up all the sides.

