# Science key knowledge years



## REMEMBER?

#### Forces

- 1. Forces in Action: Forces can start or stop movement, speed things up or slow them down, change direction, or even change an object's shape!
- Gravity's Pull: Objects fall towards the Earth because of gravity—a force that keeps everything grounded!
- Weight vs. Mass: Weight is the force of gravity acting on an object, while mass measures how much "stuff" is inside that object.
- 4. Resistance Forces: Water resistance slows down objects moving through water, and air resistance does the same in the air—both work against motion!
- 5. Surface Area Matters: The bigger an object's surface area, the more water or air resistance it faces. Smaller surfaces experience less resistance—it's all about the shape!

#### Forces

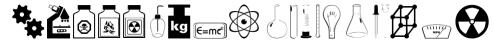
- Friction Fun: Rough surfaces create more friction, making things harder to slide, while smooth surfaces create less friction—perfect for gliding!
- Pulleys Power: Pulleys help lift heavy loads with less effort! The more wheels a pulley has, the easier it is to lift something heavy.
- 3. Gear Up: Gears and cogs can change the speed, force, or direction of motion. When they're connected, they always turn in opposite directions—teamwork in action!
- Lever Logic: Levers allow a small force to lift a heavier load. They work best when they rest on a pivot point—just like a seesaw!
- 5. Simple Machines Rock: These simple machines—pulleys, gears, and levers—make our lives easier by helping us lift, move, and change things around us!

## Materials

- 1. Material Magic: Materials can be grouped by their properties, like hardness, solubility, transparency, and how they conduct heat and electricity!
- Insulators vs. Conductors: Thermal insulators don't let heat pass through easily, while thermal conductors do—think metal vs. wood!
- 3. Dissolving Fun: Some materials, like salt and sugar, dissolve in liquids to form a solution—a tasty mix!
- 4. Separation Science: You can use a sieve to separate solids from liquids, and filter paper works for smaller solids—just like a kitchen hack!
- Change it Up: Water and ice can change back and forth (reversible change), but burning things is irreversible—a whole new substance is created!

## Living Things

- Reproduction Rules: The main purpose of reproduction is to create offspring and keep species alive—it's nature's way of continuing life!
- Plant Parts: In plants, the anther is the male part and the carpel is the female part. Together, they help plants reproduce!
- Two Ways to Reproduce: Plants can reproduce in two ways: asexual reproduction (like daffodils and potatoes making clones) and sexual reproduction (where pollen and ovules unite to form seeds).
- 4. Mammal Life Cycles: Not all mammals share the same life cycle! There are three types: placentals, marsupials, and monotremes, each with unique ways of developing.
- Eggs vs. No Eggs: Amphibians, insects, and birds lay eggs, while most mammals give live birth. Plus, mammals and birds develop differently—with mammals not undergoing metamorphosis like some amphibians!



### Space

- Spherical Bodies in Space: The Sun, planets, and moons are all approximately spherical shapes —just like giant balls in the cosmos!
- 2. Planets in Order: From Mercury to Neptune, there are 8 main planets in our solar system. Can you name them all?
- 3. The Moon's Dance: The moon orbits around the Earth, taking about 28 days to complete one full trip!
- 4. Earth's Yearly Journey: It takes Earth 3651/4 days to revolve around the Sun—no wonder we have leap years!
- Day and Night: The Earth spins on its axis every 24 hours, creating the cycle of day and night. Remember, the Sun doesn't move; it's us that spins!