

Science Question Bank

Questions with Explained Answer Keys

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192 questions · correct answers in bold with an explanation

Life Science

Cells & Cell Processes

1. How does the body make new cells to heal a cut?

- A. Cells appear from nothing
- B. Existing cells divide in two ✓**
- C. The heart makes them
- D. Food turns straight into cells

Answer: B. *New cells come from existing cells dividing. This lets living things grow and repair damage.*

2. Which biomolecule is mainly used to BUILD and REPAIR the body?

- A. Carbohydrates
- B. Proteins ✓**
- C. Fats
- D. Water

Answer: B. *Proteins build and repair body tissues; carbohydrates and fats are mainly for energy.*

3. Which part of a cell contains its DNA and directs its activities?

- A. Cell membrane
- B. Nucleus ✓**
- C. Cytoplasm
- D. Cell wall

Answer: B. *The nucleus holds the cell's DNA and acts as its control center.*

4. Green plants make food from sunlight, water, and carbon dioxide. This process is:

- A. Respiration
- B. Digestion
- C. Photosynthesis ✓**
- D. Evaporation

Answer: C. *Photosynthesis turns sunlight, water, and carbon dioxide into sugar and oxygen.*

Human Body Systems

1. What is the main idea of this passage?

- A. The heart is the most important organ
- B. The body's systems each have a job and work together to keep it alive ✓**
- C. Blood carries oxygen
- D. Bones support the body

Answer: B. *The passage is mostly about how the body's systems work together, which is its main idea.*

2. In the passage, keeping the body balanced and alive is called:

- A. Digestion
- B. Homeostasis ✓**
- C. Respiration
- D. Circulation

Answer: B. *The passage says keeping the body balanced is a process called homeostasis.*

3. Which of the following is NOT a job of the skeletal system?

- A. Supporting the body
- B. Protecting organs
- C. Pumping blood ✓**
- D. Working with muscles to move

Answer: C. *Pumping blood is the heart's job. The skeleton supports, protects, and helps with movement.*

4. Which two systems work together to get oxygen into the blood?

- A. Digestive and nervous
- B. Respiratory and circulatory ✓**
- C. Skeletal and muscular
- D. Digestive and circulatory

Answer: B. *The lungs (respiratory) take in oxygen, and the blood (circulatory) carries it through the body.*

Genetics & Heredity

1. In a $Bb \times Bb$ cross, what percent of the offspring are expected to show the RECESSIVE trait?

- A. 0%
- B. 25% ✓**
- C. 50%
- D. 75%

Answer: B. *Only bb shows the recessive trait, and bb is 1 of the 4 boxes = 25%. The other three (BB , Bb , Bb) show the dominant trait.*

2. Inside the nucleus, DNA is packed into structures called:

- A. Chromosomes ✓**
- B. Mitochondria
- C. Membranes
- D. Ribosomes

Answer: A. *DNA is organized into chromosomes; humans have 46 (23 pairs) in most cells, and genes are sections of DNA on them.*

3. If both parents are Bb, what fraction of offspring are expected to be bb?

Both parents are Bb

	B	b
B	BB	Bb
b	Bb	bb

A. 1/4 ✓

B. 1/2

C. 3/4

D. 0

Answer: A. The boxes are BB, Bb, Bb, bb. Only one of four is bb, so 1/4.

4. What fraction of the offspring are expected to be tall (have at least one T)?

Tt crossed with tt (T is dominant)

	T	t
t	Tt	tt
t	Tt	tt

A. 1/4

B. 1/2 ✓

C. 3/4

D. All

Answer: B. The boxes are Tt, Tt, tt, tt. Two of four carry a T, so 1/2 are tall.

5. An allele that shows up only when two copies are present is called:

A. Dominant

B. Recessive ✓

C. A phenotype

D. A gene

Answer: B. A recessive trait appears only when both alleles are recessive (like bb).

6. In this $BB \times bb$ cross, what genotype will ALL of the offspring have?

$BB \times bb$

	B	B
b	Bb	Bb
b	Bb	Bb

- A. BB
- B. Bb ✓**
- C. bb
- D. A mix of all three

Answer: B. Each child gets a B from one parent and a b from the other, so every box is Bb.

7. In a $Bb \times Bb$ cross, what is the genotype ratio of the offspring?

- A. 1 BB : 2 Bb : 1 bb ✓**
- B. All Bb
- C. 1 BB : 1 bb
- D. 3 BB : 1 bb

Answer: A. The four boxes are BB, Bb, Bb, and bb — a ratio of 1 BB to 2 Bb to 1 bb.

8. B (brown eyes) is dominant over b (blue eyes). In a $Bb \times Bb$ cross, what fraction of children are expected to have BROWN eyes?

- A. 1/4
- B. 1/2
- C. 3/4 ✓**
- D. All

Answer: C. Three of the four boxes (BB, Bb, Bb) have at least one B, so 3/4 show the dominant brown trait.

9. In this $Bb \times bb$ cross, what fraction of the offspring are bb ?

$Bb \times bb$

	B	b
b	Bb	bb
b	Bb	bb

- A. $1/4$
- B. $1/2$ ✓**
- C. $3/4$
- D. 0

Answer: B. The boxes are Bb , Bb , bb , bb — two of the four are bb , so $1/2$.

10. A person who carries one recessive allele hidden behind a dominant one (like Bb) is called a:

- A. Twin
- B. Carrier ✓**
- C. Clone
- D. Donor

Answer: B. A carrier has the recessive allele but doesn't show the trait, and can still pass it on to children.

11. Which of these describes a PHENOTYPE rather than a genotype?

- A. Bb
- B. BB
- C. Brown eyes ✓**
- D. bb

Answer: C. A phenotype is the trait you can see, like brown eyes. BB , Bb , and bb are genotypes — the letter combinations.

Evolution & Natural Selection

1. In a dark forest, dark moths are hidden from birds while light moths get eaten. Over time, most moths become dark. This is an example of:

- A. Photosynthesis
- B. Natural selection ✓**
- C. Homeostasis
- D. Erosion

Answer: B. The trait that helps survival (dark color) gets passed on more often — that's natural selection.

2. A trait that helps an organism survive in its environment is called:

- A. A mutation
- B. An adaptation ✓**
- C. A phenotype
- D. A control

Answer: B. *An adaptation is a helpful trait that improves an organism's chances of surviving and reproducing.*

Ecosystems & Energy Flow

1. The largest population an ecosystem can support over time is called its:

- A. Food web
- B. Carrying capacity ✓**
- C. Energy pyramid
- D. Habitat

Answer: B. *Carrying capacity is the maximum population an ecosystem's resources can support.*

2. Bees and flowers helping each other is an example of:

- A. Predation
- B. Mutualism ✓**
- C. Competition
- D. Erosion

Answer: B. *In mutualism, both species benefit — bees get food and flowers get pollinated.*

3. Two deer feeding from the same small patch of grass are in:

- A. Mutualism
- B. Predation
- C. Competition ✓**
- D. Cooperation

Answer: C. *Competition is when living things need the same limited resource — here, the same food.*

4. What is the main idea of this passage?

- A. Plants are green
- B. How energy and matter move through an ecosystem ✓**
- C. Predators are dangerous
- D. Soil is important

Answer: B. *The passage is mostly about how energy flows and matter cycles through an ecosystem.*

5. Based on the passage, why are there fewer top predators than plants?

- A. Predators are bigger
- B. Energy shrinks at each step of the chain ✓**
- C. Plants reproduce quickly
- D. There is a rule against predators

Answer: B. *The passage explains energy shrinks at each step, so less is available higher up — a fair inference.*

6. In this food chain, which organism is the primary consumer?

Algae → Insect → Fish → Heron

A. Algae

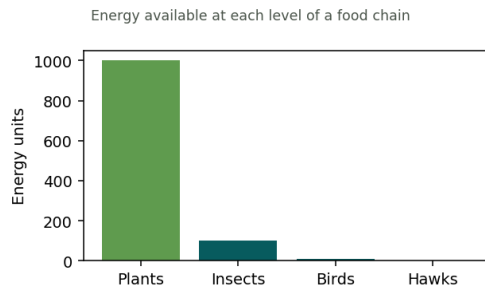
B. Insect ✓

C. Fish

D. Heron

Answer: B. *The primary consumer eats the producer. Algae is the producer, so the insect that eats it is the primary consumer.*

7. Which level of the food chain has the most available energy?



A. Plants ✓

B. Insects

C. Birds

D. Hawks

Answer: A. *Energy shrinks at each higher level, so producers (plants) start with the most.*

8. What is the main role of decomposers in an ecosystem?

A. To make food from sunlight

B. To break down dead material and recycle nutrients ✓

C. To hunt large animals

D. To produce oxygen

Answer: B. *Decomposers break down dead plants and animals, returning nutrients to the soil for producers to reuse.*

9. In this grassland food chain, which organism is the producer?

Grass → Grasshopper → Mouse → Hawk

A. Grass ✓

B. Grasshopper

C. Mouse

D. Hawk

Answer: A. *The producer makes its own food from sunlight. Grass is the producer; everything else eats to get energy.*

10. Which organism is the primary consumer — the first to eat the producer?

Grass → Grasshopper → Mouse → Hawk

A. Grass

B. Grasshopper ✓

C. Mouse

D. Hawk

Answer: B. *The grasshopper eats the grass (the producer), so it is the primary consumer.*

11. In this ocean food chain, which organism is the top predator?

Plankton → Shrimp → Fish → Seal

A. Plankton

B. Shrimp

C. Fish

D. Seal ✓

Answer: D. *The seal is at the end of the chain and nothing eats it here, so it is the top predator.*

12. Which organism is a secondary consumer — it eats the primary consumer?

Plankton → Shrimp → Fish → Seal

A. Plankton

B. Shrimp

C. Fish ✓

D. Seal

Answer: C. *Shrimp eat the plankton (making shrimp the primary consumer), and the fish eat the shrimp, so the fish is a secondary consumer.*

13. If the beetles disappeared from this food chain, what would most likely happen to the frogs?

Berries → Beetle → Frog → Snake

A. They would have more food

B. They would have less food ✓

C. Nothing would change

D. They would become producers

Answer: B. *The frogs eat beetles here, so losing the beetles means the frogs lose a food source.*

Reading an Article: How Vaccines Work

1. What is the main idea of the passage?

A. The immune system is slow

B. How vaccines help the body fight disease ✓

C. Newborns get sick easily

D. Germs are everywhere

Answer: B. *The passage is mostly about how vaccines prepare the body to fight disease.*

2. According to the passage, what does a vaccine show the body?

- A. A strong, full-strength germ
- B. A harmless piece or weakened form of a germ ✓**
- C. A memory cell
- D. A dose of medicine

Answer: B. *The passage says a vaccine shows a harmless piece or weakened form of a germ — enough to learn from, not enough to cause disease.*

3. In the passage, 'memory cells' are cells that:

- A. Store your thoughts
- B. Remember a germ so the body can fight it faster later ✓**
- C. Make you feel sick
- D. Replace the vaccine

Answer: B. *The passage explains that memory cells remember the germ so the body reacts quickly next time.*

4. Why can a first infection make you sick for several days?

- A. The germ is stronger the first time
- B. The immune system needs time to learn the new germ ✓**
- C. Vaccines wear off
- D. Memory cells attack the body

Answer: B. *The passage says the immune system has to learn a new germ before it can fight it well, and that takes time.*

5. 'Community immunity' most helps people who:

- A. Are already vaccinated
- B. Cannot get the vaccine, such as newborns ✓**
- C. Never leave home
- D. Make vaccines

Answer: B. *The passage says community immunity protects those who cannot get the vaccine, like newborns, because the germ has fewer places to spread.*

6. According to the passage, how did Edward Jenner get the idea for the first vaccine?

- A. He read about it in a book
- B. He noticed milkmaids who had cowpox rarely caught smallpox ✓**
- C. He invented it in a lab
- D. He caught smallpox himself

Answer: B. *The passage explains Jenner noticed that milkmaids who had caught cowpox almost never caught smallpox, which led him to test the idea.*

Reading an Article: Why Bees Matter

1. What is the main idea of the passage?

- A. Bees make honey
- B. Bees are important pollinators, and their numbers are dropping ✓**
- C. Flowers need nectar
- D. Pesticides are useful

Answer: B. *The passage is mostly about why bees matter as pollinators and the fact that they are declining.*

2. According to the passage, what is pollination?

- A. Bees making honey
- B. Pollen moving from flower to flower so plants make seeds and fruit ✓**
- C. Flowers producing nectar
- D. Bees losing their hives

Answer: B. *The passage defines pollination as pollen carried between flowers, which lets plants make seeds and fruit.*

3. Based on the passage, if bees disappeared, we would most likely expect:

- A. More honey
- B. Less of foods like apples and almonds ✓**
- C. More wild flowers
- D. Fewer pesticides

Answer: B. *The passage says crops like apples and almonds grow only after pollination, so losing bees would mean less of those foods — a fair inference.*

4. The passage uses 'about one in every three bites of food' to show:

- A. How much honey bees make
- B. How much of our food depends on pollinators ✓**
- C. How many bees exist
- D. How fast bees fly

Answer: B. *That figure is given to show how large a share of our food depends on pollinators like bees.*

5. According to the passage, why are billions of honeybees trucked into California's almond orchards each spring?

- A. To make honey for sale
- B. Because the almond trees depend on bees to pollinate their blossoms ✓**
- C. To protect the trees from pests
- D. To collect water for the trees

Answer: B. *The passage explains the orchards depend so completely on bees that beekeepers bring in billions to pollinate the blossoms, or the trees set almost no nuts.*

6. Beyond farms, how else does the passage say bees are important?

- A. They clean rivers
- B. They pollinate wild plants that feed birds, deer, and other animals ✓**
- C. They control the weather
- D. They build the soil

Answer: B. *The passage says bees pollinate wild plants whose berries and seeds feed other animals, helping hold ecosystems together.*

Reading an Article: Cells, the Building Blocks of Life

1. What is the main idea of the passage?

A. Bacteria are tiny

B. All living things are made of cells, which carry out life's jobs ✓

C. Plants are green

D. Humans have trillions of cells

Answer: B. *The passage as a whole is about cells being the basic units of life and what they do.*

2. According to the passage, what is the job of the nucleus?

A. To release energy

B. To hold the DNA and control the cell ✓

C. To let things in and out

D. To capture sunlight

Answer: B. *The passage says the nucleus holds the cell's DNA and acts as its control center.*

3. In the passage, 'photosynthesis' is the process by which:

A. Cells release energy from food

B. Plants make food from sunlight, water, and carbon dioxide ✓

C. DNA is copied

D. Water enters the cell

Answer: B. *The passage defines photosynthesis as plant cells using sunlight, water, and carbon dioxide to make sugar and oxygen.*

4. Based on the passage, plants can make their own food but animals cannot because plants have:

A. A nucleus

B. Mitochondria

C. Chloroplasts ✓

D. A cell membrane

Answer: C. *The passage says chloroplasts let plants do what animals cannot — make food from sunlight.*

Reading an Article: How the Body Uses Food

1. What is the main idea of the passage?

A. Chewing is important

B. How the body breaks down food and uses its nutrients ✓

C. The stomach has acids

D. Waste leaves the body

Answer: B. *The passage is mostly about how the digestive system breaks down food so the body can use it.*

2. According to the passage, where does most absorption of nutrients happen?

A. The mouth

B. The stomach

C. The small intestine ✓

D. The blood

Answer: C. *The passage states most absorption happens in the small intestine, where nutrients pass into the blood.*

3. According to the passage, which nutrient mainly builds and repairs the body?

A. Carbohydrates

B. Proteins ✓

C. Fats

D. Vitamins

Answer: B. *The passage says proteins build and repair the body.*

4. Based on the passage, why do health experts recommend eating a variety of foods?

A. Variety tastes better

B. Different nutrients do different jobs the body needs ✓

C. It is cheaper

D. It speeds up digestion

Answer: B. *Because carbohydrates, proteins, fats, vitamins, and minerals each do different jobs, a variety supplies them all — a fair inference.*

5. According to the passage, digestion begins in the:

A. Stomach

B. Small intestine

C. Mouth ✓

D. Blood

Answer: C. *The passage says digestion begins in the mouth with chewing and saliva.*

6. You eat a bowl of oatmeal before a long walk. Which type of nutrient in the oatmeal gives you quick energy?

A. Protein

B. Carbohydrates ✓

C. Fat

D. Water

Answer: B. *The passage says carbohydrates give quick energy — exactly what you want before a walk.*

7. After lifting weights, an athlete eats eggs and chicken. Which nutrient in that food mainly helps build and repair muscle?

A. Fat

B. Protein ✓

C. Sugar

D. Vitamins

Answer: B. *The passage says proteins build and repair the body, so eggs and chicken help rebuild muscle after exercise.*

Reading an Article: Genes and Heredity

1. What is the main idea of the passage?

- A. Everyone has DNA
- B. How traits are passed from parents to children through genes ✓**
- C. Blue eyes are rare
- D. Punnett squares are hard

Answer: B. *The passage is mostly about how traits are inherited through genes.*

2. According to the passage, traits are carried in a molecule called:

- A. Protein
- B. DNA ✓**
- C. An allele
- D. A Punnett square

Answer: B. *The passage says genes are instructions carried in a molecule called DNA.*

3. In the passage, a 'dominant' allele is one that:

- A. Only shows with two copies
- B. Shows up whenever it is present ✓**
- C. Never shows up
- D. Is carried only by fathers

Answer: B. *The passage defines a dominant allele as one that shows up whenever it is present.*

4. Based on the passage, two brown-eyed parents can have a blue-eyed child because:

- A. Blue eyes are dominant
- B. Each parent carried a hidden recessive allele for blue eyes ✓**
- C. The child has no genes from them
- D. Eye color is random

Answer: B. *The passage explains both parents carried a hidden recessive blue-eye allele — a direct inference.*

Reading an Article: Natural Selection

1. What is the main idea of the passage?

- A. Beetles are dark
- B. How species change over time through natural selection ✓**
- C. Birds eat beetles
- D. Fossils are old

Answer: B. *The passage is mostly about how helpful traits spread through natural selection, driving evolution.*

2. In the passage, 'variations' are:

- A. Types of birds
- B. Small differences among individuals of a species ✓**
- C. Changes in the weather
- D. Kinds of trees

Answer: B. *The passage defines variations as the small differences among individuals within a species.*

3. Based on the passage, why did the beetle group become mostly dark over time?

A. Dark beetles laid more eggs by chance

B. Birds ate the easy-to-see light beetles, so dark ones survived and reproduced ✓

C. The bark turned dark

D. Dark beetles were larger

Answer: B. *The passage explains birds ate the visible light beetles, so the surviving dark beetles passed on their color — a direct inference.*

4. In the passage, a trait that improves survival in an environment is called:

A. A variation

B. An adaptation ✓

C. A fossil

D. A species

Answer: B. *The passage defines an adaptation as a trait that improves survival in a certain environment.*

Physical Science

Matter & Its Properties

1. What is the main idea of this passage?

- A. Ice is cold
- B. The states of matter and the two kinds of changes ✓**
- C. Gases are invisible
- D. Iron rusts slowly

Answer: B. *The passage covers solids, liquids, and gases plus physical versus chemical changes.*

2. According to the passage, ice melting is an example of a:

- A. Chemical change
- B. Physical change ✓**
- C. New substance forming
- D. Gas

Answer: B. *The passage gives ice melting as a physical change — the same material in a new form.*

3. Which of the following is a chemical change?

- A. Ice melting
- B. Iron rusting ✓**
- C. Water boiling
- D. Tearing paper

Answer: B. *Rusting forms a new substance (iron oxide). The others only change form or state.*

4. Which material would sink in water?

Density of materials (water = 1.0 g/mL)

Material	Density (g/mL)
Cork	0.24
Ice	0.92
Aluminum	2.70
Lead	11.3

- A. Cork
- B. Ice
- C. Aluminum ✓**
- D. None

Answer: C. *Anything denser than 1.0 g/mL sinks. Aluminum (2.70) sinks; cork and ice float.*

Atoms & Chemical Reactions

1. What is the main idea of this passage?

- A. Water is a compound
- B. Atoms build all matter, and mass is conserved in reactions ✓**
- C. Gold is valuable
- D. Reactions happen fast

Answer: B. *The passage is about atoms forming matter and the conservation of mass.*

2. In the passage, an 'element' is:

- A. A mixture of substances
- B. A substance made of just one kind of atom ✓**
- C. A kind of reaction
- D. A drop of water

Answer: B. *The passage defines an element as a substance made of one kind of atom.*

3. In a sealed jar, 10 g of reactants react completely. What is the total mass of the products?

- A. Less than 10 g
- B. Exactly 10 g ✓**
- C. More than 10 g
- D. It cannot be known

Answer: B. *By conservation of mass, atoms aren't lost, so the products also total 10 g.*

4. A substance with a pH of 3 is:

- A. A base
- B. Neutral
- C. An acid ✓**
- D. A metal

Answer: C. *A pH below 7 is acidic, so pH 3 is an acid.*

Chemical Equations

1. What is the main idea of this passage?

- A. Arrows are important
- B. How to read a chemical equation ✓**
- C. Water is H₂O
- D. Atoms are tiny

Answer: B. *The passage explains how to read an equation: reactants, products, subscripts, coefficients, and balance.*

2. According to the passage, why must an equation be balanced?

- A. To look neat
- B. Because atoms are never created or destroyed ✓**
- C. Because of the arrow
- D. To use bigger numbers

Answer: B. *The passage says atoms are never created or destroyed, so each kind of atom must be equal on both sides.*

3. In the equation $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$, which are the reactants?

- A. 2H₂O
- B. 2H₂ and O₂ ✓**
- C. Only O₂
- D. The arrow

Answer: B. *Reactants are the substances on the LEFT of the arrow: 2H₂ and O₂.*

4. What does the arrow ($\rightarrow$) in a chemical equation mean?

A. Equals zero

B. 'Produces' or 'yields' ✓

C. Subtract

D. Divide

Answer: B. The arrow shows that the reactants produce (yield) the products.

5. In the formula H_2O , how many hydrogen atoms are there?

A. 1

B. 2 ✓

C. 3

D. 0

Answer: B. The subscript 2 right after the H means 2 hydrogen atoms.

6. In $2\text{H}_2\text{O}$, how many water molecules are shown?

A. 1

B. 2 ✓

C. 4

D. 6

Answer: B. The coefficient 2 in front of the formula means two whole water molecules.

7. Why must a chemical equation be balanced — the same atoms on both sides?

A. To look neat

B. Because atoms are never created or destroyed ✓

C. To make the numbers bigger

D. Because of gravity

Answer: B. Matter is conserved: atoms are only rearranged, so each kind of atom must be equal on both sides.

8. How many oxygen atoms are on the LEFT side of $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$?

A. 1

B. 2 ✓

C. 4

D. 0

Answer: B. O_2 contains 2 oxygen atoms, and there is no other oxygen on the left, so 2.

9. In $\text{C} + \text{O}_2 \rightarrow \text{CO}_2$, how many oxygen atoms are on each side?

A. 1

B. 2 ✓

C. 3

D. 4

Answer: B. O_2 has 2 oxygen atoms on the left, and CO_2 has 2 oxygen atoms on the right — balanced.

10. In the formula CH_4 , how many hydrogen atoms are there?

- A. 1
- B. 2
- C. 4 ✓
- D. 6

Answer: C. The subscript 4 after the H means 4 hydrogen atoms.

11. In 2NaCl , how many chlorine (Cl) atoms are shown in all?

- A. 1
- B. 2 ✓
- C. 3
- D. 4

Answer: B. The coefficient 2 means two NaCl units, each with 1 Cl, so 2 chlorine atoms.

12. In $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$, which substance is a PRODUCT?

- A. CH_4
- B. O_2
- C. CO_2 ✓
- D. None of these

Answer: C. Products are on the right of the arrow: CO_2 and $2\text{H}_2\text{O}$.

Forces & Motion

1. An object at rest stays at rest unless a force acts on it. This idea is called:

- A. Gravity
- B. Inertia ✓
- C. Friction
- D. Energy

Answer: B. Inertia is an object's tendency to keep doing what it's doing until a force changes it.

2. A car travels 150 miles in 3 hours. What is its average speed in miles per hour? (Type the number)

Answer: 50. $\text{Speed} = \text{distance} / \text{time} = 150 / 3 = 50 \text{ mph}$.

Energy

1. Which is an example of stored (potential) energy?

- A. A car driving
- B. A book on a high shelf ✓
- C. A rolling ball
- D. A spinning fan

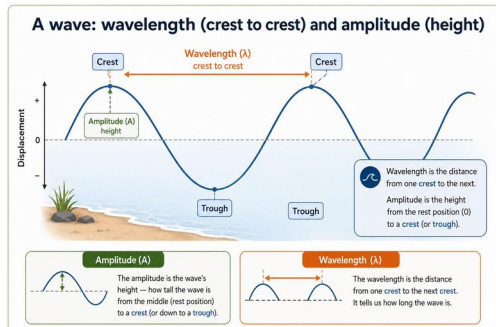
Answer: B. A book on a high shelf has stored energy due to its position; if it falls, that becomes motion. The others are already moving (kinetic).

2. When you rub your hands together, they warm up. Friction turns motion energy into:
- A. Light
 - B. Sound
 - C. Thermal (heat) energy ✓**
 - D. Chemical energy

Answer: C. Friction converts motion into thermal energy, warming the surfaces.

Waves, Light & Electricity

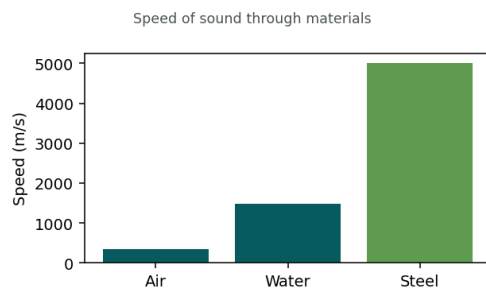
1. On the wave shown, the distance labeled X (crest to crest) is the wave's:



- A. Amplitude
- B. Wavelength ✓**
- C. Frequency
- D. Speed

Answer: B. The distance from one crest to the next is the wavelength. The height (Y) is the amplitude.

2. Sound travels fastest through which material?



- A. Air
- B. Water
- C. Steel ✓**
- D. Equal

Answer: C. Steel is the tallest bar. Sound travels fastest through solids, slowest through gases.

Magnetism

1. Every magnet has how many poles?

- A. One
- B. Two ✓**
- C. Three
- D. None

Answer: B. Every magnet has two poles — a north (N) and a south (S).

2. What happens when you bring two NORTH poles close together?

- A. They attract (pull together)
- B. They repel (push apart) ✓**
- C. Nothing happens
- D. They melt

Answer: B. Like poles repel. Two norths (or two souths) push apart; opposite poles attract.

3. The invisible area around a magnet where it can push or pull is called the:

- A. Magnetic field ✓**
- B. Circuit
- C. Current
- D. Pole

Answer: A. The magnetic field is the area around a magnet where its force can act.

4. An electromagnet is made by:

- A. Rubbing two magnets together
- B. Running electric current through a coil of wire ✓**
- C. Heating iron
- D. Freezing a magnet

Answer: B. Moving electric charges (current) through a coiled wire create a magnetic field — an electromagnet.

Reading an Article: Renewable Energy

1. What is the main idea of the passage?

- A. Fossil fuels are cheap
- B. Wind and solar are growing as clean alternatives to fossil fuels ✓**
- C. Solar panels have moving parts
- D. The wind always blows

Answer: B. The passage is mostly about renewable energy (wind and solar) replacing polluting fossil fuels.

2. According to the passage, how does a wind turbine make electricity?

- A. It burns fuel
- B. Moving air spins blades that turn a generator ✓**
- C. Sunlight hits a panel
- D. It stores heat

Answer: B. The passage says wind turbines use moving air to spin blades, which turn a generator.

3. In the passage, 'renewable energy' means sources that:

- A. Burn cleanly
- B. Do not run out and do not burn fuel ✓**
- C. Are always available
- D. Cost nothing to build

Answer: B. *The passage defines renewable energy as sources that do not run out and do not burn fuel.*

4. Based on the passage, a real challenge for wind and solar is that:

- A. They cost too much fuel
- B. The wind and sun are not always available ✓**
- C. They pollute the air
- D. They cannot make electricity

Answer: B. *The passage explains the wind doesn't always blow and the sun doesn't always shine, so power must be stored or combined — a fair inference.*

Reading an Article: Sound and How We Hear

1. What is the main idea of the passage?

- A. Guitars are loud
- B. How sound is made, travels, and is described ✓**
- C. Space is silent
- D. Ears are complicated

Answer: B. *The passage is mostly about how sound starts, moves, and what features describe it.*

2. According to the passage, what does sound need in order to travel?

- A. Bright light
- B. A material such as air, water, or a solid ✓**
- C. Empty space
- D. Electricity

Answer: B. *The passage states sound needs a material to travel through and cannot cross empty space.*

3. The passage says sound travels FASTEST through:

- A. Gases
- B. Liquids
- C. Solids ✓**
- D. Empty space

Answer: C. *The passage explains sound moves fastest through solids because their particles are packed tightly.*

4. Based on the passage, why is space silent?

- A. Space is too cold
- B. There is no material for sound to travel through ✓**
- C. Sound is too weak
- D. No one is listening

Answer: B. *Since sound needs a material and space is empty, sound cannot travel there — a direct inference.*

Reading an Article: Forces and Motion

1. What is the main idea of the passage?

- A. Cars are dangerous
- B. How forces and Newton's laws explain motion ✓**
- C. Rockets are fast
- D. Doors are heavy

Answer: B. *The passage is mostly about forces and the three laws that describe how motion works.*

2. In the passage, a 'force' is defined as:

- A. A kind of energy
- B. A push or a pull ✓**
- C. A moving object
- D. A type of speed

Answer: B. *The passage says a force is simply a push or a pull.*

3. According to the passage, why do you need a seatbelt when a car stops suddenly?

- A. Cars are heavy
- B. A moving object keeps moving until a force stops it (Newton's first law) ✓**
- C. Seatbelts add speed
- D. Gravity pulls you down

Answer: B. *The passage uses the seatbelt to illustrate the first law: a moving object keeps moving until a force changes it.*

4. Based on the passage, why is it harder to stop a loaded cart than an empty one?

- A. The loaded cart is colder
- B. A heavier object needs more force to change its motion ✓**
- C. Empty carts have no wheels
- D. Loaded carts move faster on their own

Answer: B. *By the second law, a heavier object needs more force — so stopping the heavier cart takes more force. A direct inference.*

Reading an Article: Chemical Changes

1. What is the main idea of the passage?

- A. Ice is cold
- B. The difference between physical and chemical changes, and that matter is conserved ✓**
- C. Eggs are food
- D. Rust is red

Answer: B. *The passage contrasts physical and chemical changes and explains conservation of mass.*

2. According to the passage, which is an example of a PHYSICAL change?

- A. Iron rusting
- B. Wood burning
- C. Ice melting into water ✓**
- D. An egg cooking

Answer: C. *The passage gives ice melting as a physical change — it is still water, the same material.*

3. According to the passage, which is a sign of a chemical change?

A. The object gets wet

B. A color change, gas bubbles, or heat and light given off ✓

C. The object moves

D. The object gets colder only

Answer: B. *The passage lists color change, gas, new smell, and heat or light as signs of a chemical change.*

4. Based on the passage, a nail rusting is a chemical change because:

A. The nail gets wet

B. A brand-new material forms that can't easily be turned back ✓

C. The nail changes shape

D. The nail gets colder

Answer: B. *The passage says rusting forms a new material — the mark of a chemical change.*

Earth & Space Science

Earth's Structure & Plate Tectonics

1. Earthquakes and volcanoes happen most often where:

- A. Rivers meet the ocean
- B. Tectonic plates meet ✓**
- C. Deserts form
- D. Forests grow

Answer: B. *Most earthquakes and volcanoes occur along the boundaries where Earth's plates meet.*

2. Which layer of the Earth is the hottest?

- A. The crust
- B. The mantle
- C. The outer core
- D. The inner core ✓**

Answer: D. *Temperature rises with depth, so the inner core at the center is hottest.*

Rocks, Minerals & Earth's Cycles

1. A rock that forms when melted lava cools and hardens is:

- A. Sedimentary
- B. Igneous ✓**
- C. Metamorphic
- D. A fossil

Answer: B. *Igneous rock forms from cooled, hardened molten material like lava or magma.*

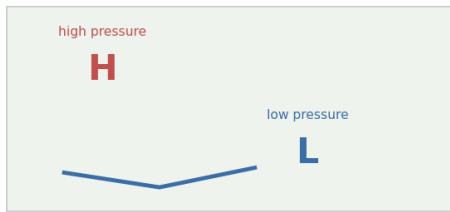
2. Water vapor cooling into liquid droplets that form clouds is called:

- A. Evaporation
- B. Condensation ✓**
- C. Erosion
- D. Precipitation

Answer: B. *Condensation is water vapor cooling into liquid droplets — the step that forms clouds.*

Weather & Climate

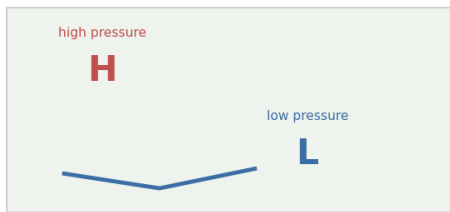
1. On this weather map, what does the H stand for?



- A. Heat
- B. High pressure ✓
- C. Humidity
- D. Hurricane

Answer: B. On a weather map, H marks a high-pressure area, which usually brings fair weather.

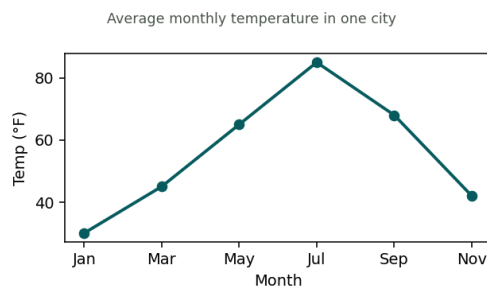
2. Which usually brings clouds and storms?



- A. High pressure (H)
- B. Low pressure (L) ✓
- C. The key
- D. Fair skies

Answer: B. Low pressure (L) is usually linked to clouds and storms; high pressure (H) usually means fair weather.

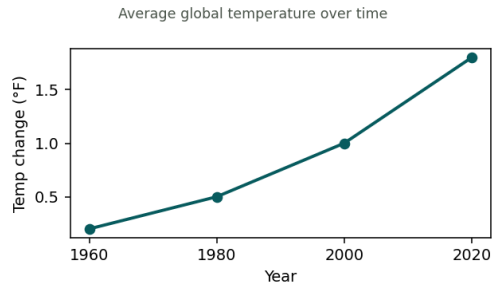
3. Which month was the warmest?



- A. January
- B. March
- C. July ✓
- D. November

Answer: C. July is the highest point on the graph, about 85°F.

4. Based on the trend, the average global temperature is:



- A. Decreasing
- B. Staying the same
- C. Increasing ✓**
- D. Rising then falling

Answer: C. Each point is higher than the last, so temperature is increasing over time.

Astronomy: Earth, Moon & Beyond

1. Stars form from giant clouds of:

- A. Water
- B. Gas and dust (a nebula) ✓**
- C. Rock
- D. Ice

Answer: B. A star begins in a nebula — a cloud of gas and dust that slowly pulls together.

2. A very large star may end its life by exploding as a:

- A. White dwarf
- B. Supernova ✓**
- C. Comet
- D. Planet

Answer: B. The largest stars end in a huge explosion called a supernova.

3. Which planet is farthest from the Sun?

Distance of planets from the Sun

Planet	Distance (million km)
Mercury	58
Earth	150
Jupiter	778
Neptune	4,500

- A. Mercury
- B. Earth
- C. Jupiter
- D. Neptune ✓**

Answer: D. Neptune has the largest distance (4,500 million km), so it's farthest.

4. What causes day and night on Earth?

- A. Earth orbiting the sun
- B. Earth spinning on its axis ✓**
- C. The moon's phases
- D. The tilt of Earth

Answer: B. *Earth's rotation (spinning once every 24 hours) brings each side into and out of sunlight.*

Reading an Article: Coral Reefs & Warming Seas

1. What is the main idea of the passage?

- A. Coral reefs are very colorful
- B. Warming oceans threaten coral reefs and the life they support ✓**
- C. Algae live inside coral
- D. Reefs cover less than 1% of the ocean

Answer: B. *The passage as a whole is about how rising ocean temperatures endanger reefs. The others are true details, not the main point.*

2. According to the passage, what do the algae give the coral?

- A. A safe home
- B. Food made from sunlight ✓**
- C. A bright white color
- D. Cooler water

Answer: B. *The passage says the algae make food using sunlight and share it with the coral.*

3. In the passage, 'coral bleaching' refers to coral that has:

- A. Grown much larger
- B. Turned white after losing its algae ✓**
- C. Been cleaned by divers
- D. Changed into a new species

Answer: B. *The passage explains that stressed coral pushes out its algae and turns bone white — that is bleaching.*

4. Based on the passage, bleached coral is most likely to recover if:

- A. The water cools again soon ✓**
- B. The heat lasts a long time
- C. More algae are removed
- D. Fishing increases nearby

Answer: A. *The passage states that if the water cools again soon, the algae can return — an inference the text directly supports.*

Reading an Article: What Causes Earthquakes

1. What is the main idea of the passage?

A. The ground is always still

B. What causes earthquakes and how people prepare for them ✓

C. Fingernails grow slowly

D. Buildings are dangerous

Answer: B. *The passage is mostly about how moving plates cause earthquakes and how people reduce the danger.*

2. According to the passage, how fast do tectonic plates move?

A. A few meters a day

B. A few centimeters a year ✓

C. Hundreds of miles an hour

D. They do not move

Answer: B. *The passage compares plate movement to fingernail growth — a few centimeters a year.*

3. In the passage, 'tectonic plates' are:

A. Ocean waves

B. Huge slabs of Earth's outer shell ✓

C. Layers of the atmosphere

D. Types of rock

Answer: B. *The passage defines tectonic plates as the huge slabs that make up Earth's broken outer shell.*

4. Based on the passage, why do some regions have far more earthquakes than others?

A. They have taller buildings

B. They sit along plate boundaries ✓

C. They are colder

D. They have more people

Answer: B. *The passage says most earthquakes happen along plate boundaries, so regions on those boundaries have more — a fair inference.*

Reading an Article: Why the Moon Changes Shape

1. What is the main idea of the passage?

A. The Moon grows and shrinks

B. Why the Moon appears to change shape as it orbits Earth ✓

C. The Moon makes its own light

D. Months are long

Answer: B. *The passage explains that the Moon's changing shape is really about how much of its lit side we see.*

2. According to the passage, why does the Moon shine?

A. It burns like the Sun

B. Sunlight bounces off it ✓

C. It glows on its own

D. Earth lights it up

Answer: B. *The passage says the Moon does not make its own light; it shines because sunlight reflects off it.*

3. In the passage, the 'phases' of the Moon are:

A. The Moon's craters

B. The repeating shapes of the lit Moon we see ✓

C. The Moon's orbit speed

D. The Moon's gravity

Answer: B. *The passage calls the repeating shapes we see — full, crescent, new — the phases of the Moon.*

4. Based on the passage, during a new moon the Moon seems to vanish because:

A. It moves far away

B. Its lit side faces away from us ✓

C. It stops orbiting

D. Clouds cover it

Answer: B. *The passage says at a new moon the lit side faces away from us, so we can't see it — a direct inference.*

Reading an Article: Weather and the Water Cycle

1. What is the main idea of the passage?

A. Rain is wet

B. How the water cycle drives weather, and how weather differs from climate ✓

C. The sun is hot

D. Deserts are dry

Answer: B. *The passage is mostly about the water cycle powering weather, plus the weather-versus-climate difference.*

2. According to the passage, what powers the water cycle?

A. The wind

B. The sun ✓

C. The ocean

D. Clouds

Answer: B. *The passage calls the sun the engine of the water cycle.*

3. In the passage, 'condensation' is the step where:

- A. Water is heated into vapor
- B. Vapor turns back into liquid droplets and forms clouds ✓**
- C. Rain falls to the ground
- D. Water collects in rivers

Answer: B. *The passage defines condensation as vapor turning into liquid droplets that gather into clouds.*

4. According to the passage, precipitation is:

- A. Water evaporating
- B. Vapor forming clouds
- C. Rain or snow falling from clouds ✓**
- D. Water heating up

Answer: C. *The passage says when droplets grow heavy they fall as rain or snow — precipitation.*

Reading an Article: Rocks and Earth's Resources

1. What is the main idea of the passage?

- A. Rocks are hard
- B. Rocks are recycled over time, and Earth's resources are renewable or nonrenewable ✓**
- C. Coal is black
- D. Sand is everywhere

Answer: B. *The passage covers the rock cycle and the two kinds of Earth resources.*

2. According to the passage, igneous rock forms when:

- A. Layers are pressed together
- B. Melted rock cools and hardens ✓**
- C. Heat and pressure change a rock
- D. Water washes over it

Answer: B. *The passage says igneous rock forms when melted rock cools and hardens.*

3. In the passage, a 'nonrenewable' resource is one that:

- A. Is replaced quickly by nature
- B. Took millions of years to form and can't be quickly replaced ✓**
- C. Comes from the sun
- D. Is found only in oceans

Answer: B. *The passage defines nonrenewable resources as ones that took millions of years to form and cannot be quickly replaced, like coal and oil.*

4. Based on the passage, why are many communities turning to renewable resources?

- A. They are prettier
- B. Nonrenewable resources are limited and burning them can pollute ✓**
- C. They are harder to use
- D. They took longer to form

Answer: B. *The passage explains nonrenewables are limited and polluting, so communities rely more on renewables — a direct inference.*

Science Skills

Reading Science & Finding Evidence

1. Which of these is a claim rather than evidence?

- A. The plants grew 12 cm in two weeks
- B. Fertilizer is the best way to grow tomatoes ✓**
- C. The sample included 40 plants
- D. The temperature stayed at 70°F

Answer: B. *A claim is a statement to be proven ('the best way'). The others are measurable data — evidence.*

2. Read: 'The town added a bike lane. Afterward, bike commuting rose 30% and traffic accidents fell.' What is the main idea?

- A. Bikes are expensive
- B. The new bike lane had positive effects ✓**
- C. Cars are dangerous
- D. Everyone should bike

Answer: B. *The passage is mostly about the positive effects that followed the bike lane.*

Designing & Interpreting Experiments

1. A student gives plants different amounts of water and measures their growth. What is the independent variable (the thing changed on purpose)?

- A. The growth of the plants
- B. The amount of water ✓**
- C. The type of soil
- D. The size of the pot

Answer: B. *The independent variable is what the student changes on purpose — the amount of water. Growth is what they measure (the dependent variable).*

2. In a fair experiment, why should you keep everything the same except one variable?

- A. To save time
- B. So you know the change caused any difference ✓**
- C. To use less equipment
- D. To make it harder

Answer: B. *Changing only one thing lets you be sure that variable — and nothing else — caused the result.*

3. Ice cream sales and sunburns both rise in summer. What is the best conclusion?

- A. Ice cream causes sunburns
- B. Sunburns cause ice cream sales
- C. Both rise with hot, sunny weather ✓**
- D. There is no reason

Answer: C. *They rise together because of a shared cause (hot, sunny weather), not because one causes the other — correlation is not causation.*

4. What is the FIRST step of the scientific method?

- A. Draw a conclusion
- B. Ask a question about something you observe ✓**
- C. Measure the results
- D. Change two things at once

Answer: B. *The scientific method begins with a question about something you notice.*

5. In the scientific method, what do you do right after forming a hypothesis?

- A. Publish the results
- B. Test it with a fair experiment ✓**
- C. Change the question
- D. Throw out the data

Answer: B. *After making a hypothesis, you test it with a fair experiment, then measure the results and draw a conclusion.*

Test Practice: Read the Material, Answer the Set

1. According to Table 1, how does the amount of sediment downstream compare with the amount above the beavers' pool?

Table 1 — Average amounts in water samples after storms

Measurement	Above beavers' pool	Downstream
Sediments (mg/L)	120	50
Nitrogen (mg/L)	3.2	2.0
Phosphate (mg/L)	1.0	0.2

- A. It is more than twice as high downstream
- B. It is about the same
- C. It is less than half as much downstream ✓**
- D. The table does not show sediment

Answer: C. *Sediment is 120 mg/L above the pool and 50 mg/L downstream — less than half as much.*

2. Based on the passage and the table, what is the most reasonable conclusion about the beavers' pool?

Table 1 — Average amounts in water samples after storms

Measurement	Above beavers' pool	Downstream
Sediments (mg/L)	120	50
Nitrogen (mg/L)	3.2	2.0
Phosphate (mg/L)	1.0	0.2

- A. It adds sediment and nutrients to the water
- B. It traps sediment and nutrients, so less flows downstream ✓**
- C. It has no effect on the water
- D. It only affects nitrogen

Answer: B. *The passage says the pool traps material, and every measurement is lower downstream — so the pool holds sediment and nutrients back.*

3. Beavers cut down mostly small trees close to the water. Which change to the habitat would MOST likely result?

A. Fewer trees shading the stream near the bank ✓

B. More trees growing in the stream

C. The stream flowing uphill

D. No change at all

Answer: A. Removing trees along the bank means less shade and cover near the water — a direct effect described in the passage.

4. Which of these is a CLAIM rather than a measurement reported in the study?

A. Sediment above the pool averaged 120 mg/L

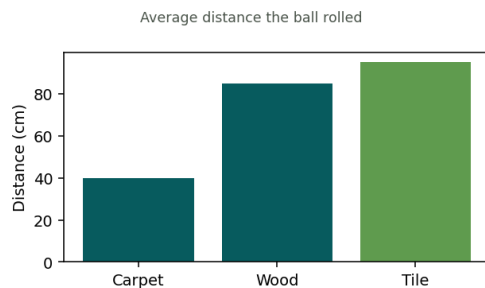
B. Nitrogen downstream averaged 2.0 mg/L

C. Beaver dams improve water quality downstream ✓

D. Phosphate above the pool averaged 1.0 mg/L

Answer: C. The numbers are measurements. Saying dams 'improve water quality' is a claim — an interpretation that goes beyond the data.

5. On which surface did the ball roll the FARTHEST?



A. Carpet

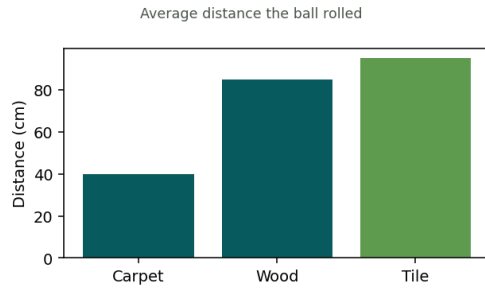
B. Wood

C. Tile ✓

D. They were equal

Answer: C. Tile has the tallest bar at about 95 cm.

6. Which statement best explains why the ball rolled the shortest distance on carpet?



A. Carpet has more friction, which slows the ball ✓

B. Carpet has no friction

C. The ball was heavier on carpet

D. Gravity is stronger on carpet

Answer: A. A rough surface like carpet creates more friction, a force that resists motion and slows the ball sooner.

7. Why did the class release the ball from the same height every time?

A. To make the test look neat

B. So the only thing changing was the surface ✓

C. To use less time

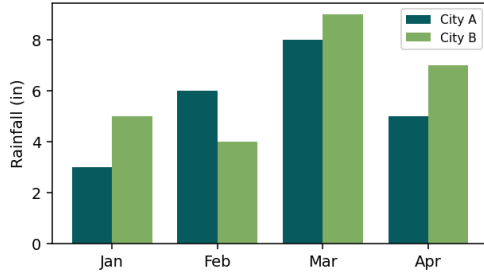
D. To make the ball heavier

Answer: B. Keeping everything else the same (a fair test) means any difference in distance is due to the surface — the variable being tested.

Science Math

Reading Graphs & Tables

1. In this double bar graph, which city had more rain in February?



A. City A ✓

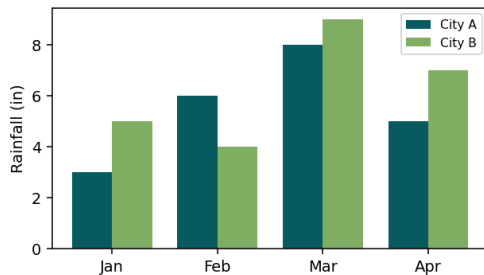
B. City B

C. They were equal

D. Neither had rain

Answer: A. In February, City A's bar (6) is taller than City B's bar (4).

2. A double bar graph uses two colors so you can:



A. Make it prettier

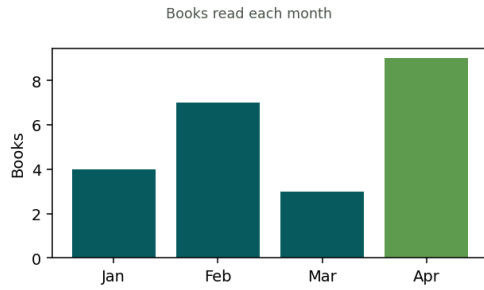
B. Compare two groups side by side ✓

C. Hide the numbers

D. Show a pie

Answer: B. Two colored bars let you compare two groups (here, two cities) in each category. Always check the key to see which color is which.

3. In which month were the most books read?



- A. January
- B. February
- C. March
- D. April ✓**

Answer: D. *April has the tallest bar (9 books).*

4. According to the table, which city had the LEAST rainfall?

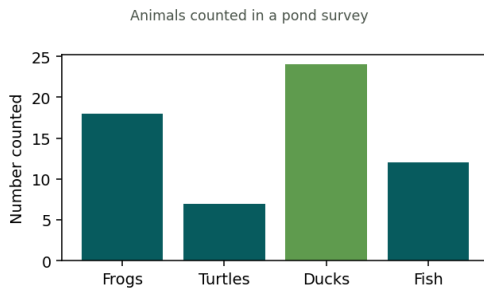
Rainfall by city (inches)

City	Rainfall
Ada	12
Belle	31
Cove	8

- A. Ada
- B. Belle
- C. Cove ✓**
- D. They are equal

Answer: C. *Cove has the smallest number, 8 inches.*

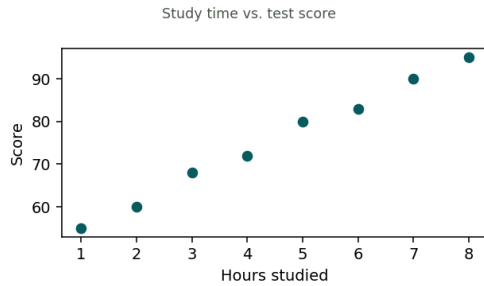
5. Which animal was most common?



- A. Frogs
- B. Turtles
- C. Ducks ✓**
- D. Fish

Answer: C. *The tallest bar is Ducks at 24.*

6. What relationship does the scatter plot show?



A. More study, lower scores

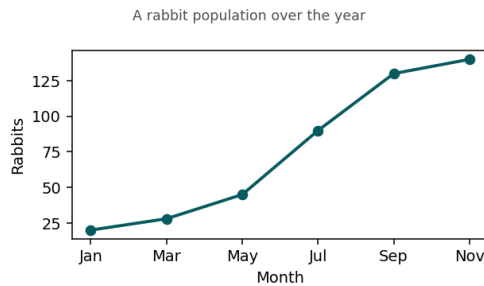
B. More study, higher scores ✓

C. No relationship

D. Scores stay the same

Answer: B. The dots rise from lower-left to upper-right — a positive relationship.

7. During which period did the population grow fastest?



A. Jan to Mar

B. Mar to May

C. May to Jul ✓

D. Sep to Nov

Answer: C. The steepest part is May to Jul, jumping from 45 to 90.

Data & Numbers in Science

1. A plant grew from 10 cm to 16 cm. What was the percent increase?

A. 6%

B. 16%

C. 60% ✓

D. 160%

Answer: C. The change is 6 cm. $6 \div 10 = 0.6 = 60\%$.

2. What is the median of 3, 9, 4, 7, 5?

A. 4

B. 5 ✓

C. 7

D. 9

Answer: B. In order: 3, 4, 5, 7, 9. The middle value is 5.

3. A car travels 120 miles in 2 hours. What is its rate (speed)?

A. 60 miles per hour ✓

B. 120 miles per hour

C. 240 miles per hour

D. 2 miles per hour

Answer: A. $\text{Rate} = \text{distance} \div \text{time} = 120 \div 2 = 60 \text{ miles per hour}$.

4. What is the mean (average) height? (Type the number)

Plant heights (cm)

Plant	Height (cm)
A	4
B	8
C	6
D	10
E	2

Answer: 6. $4 + 8 + 6 + 10 + 2 = 30$. $30 / 5 = 6 \text{ cm}$.

5. Find the median of: 3, 7, 2, 9, 5. (Type the number)

Answer: 5. In order: 2, 3, 5, 7, 9. The middle value is 5.

6. What is the range of: 12, 4, 9, 4, 15? (Type the number)

Answer: 11. $\text{Range} = \text{largest minus smallest} = 15 - 4 = 11$.

7. In a sample of 200 cells, 30 are dividing. What percent are dividing? (Type the number, no % sign)

Answer: 15. $30 / 200 = 0.15 = 15\%$.

8. Which is 45,000 in scientific notation?

A. 4.5×10^3

B. 45×10^3

C. 4.5×10^4 ✓

D. 4.5×10^5

Answer: C. Move the decimal so one digit stays in front: 4.5, four places, so 4.5×10^4 .

9. Which is 0.0007 written in scientific notation?

A. 7×10^4

B. 7×10^{-3}

C. 7×10^{-4} ✓

D. 0.7×10^3

Answer: C. The decimal moves 4 places to the right to make 7, so the power is negative: 7×10^{-4} .

10. What is 3×10^5 written out as a regular number?

A. 350

B. 3,000

C. 30,000

D. 300,000 ✓

Answer: D. 10^5 means move the decimal 5 places to the right, so 3 becomes 300,000.

Reading Graphs: Complete the Passage

How to Read Charts & Graphs

1. According to the passage, what should you read FIRST on a graph?

- A. The color
- B. The title and the axis labels ✓**
- C. The biggest bar
- D. The bottom corner

Answer: B. *The passage says to start with the title and the labels on the axes.*

2. Why does the passage warn you to check the scale?

- A. Scales are always wrong
- B. A graph can look dramatic even when the real change is small ✓**
- C. Bigger scales are better
- D. The scale never matters

Answer: B. *It explains that a line can shoot up even when the numbers barely change, so you must check the scale.*

3. During which hour did the store have the MOST visitors?



- A. 9
- B. 11
- C. 1 o'clock ✓**
- D. 5

Answer: C. *The line reaches its highest point (40) at 1 o'clock.*

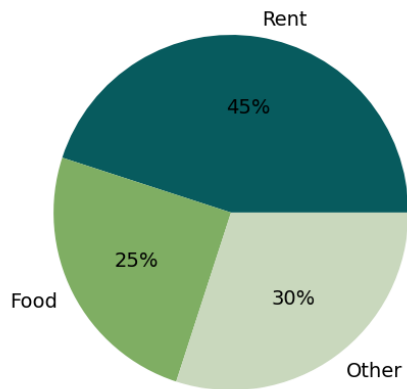
4. What happens to the number of visitors after 1 o'clock?



- A. It keeps rising
- B. It stays the same
- C. It falls ✓
- D. It doubles

Answer: C. After the peak at 1 o'clock, the line goes down — visitors decrease.

5. In this monthly budget, which is the largest share?



- A. Rent ✓
- B. Food
- C. Other
- D. They are equal

Answer: A. Rent is the biggest slice at 45%.

6. According to the table, who had the highest score?

Test scores

Student	Score
Ana	88
Ben	72
Cal	95
Dee	80

- A. Ana
- B. Ben
- C. Cal ✓
- D. Dee

Answer: C. Cal's score of 95 is the highest number in the table.

7. An axis is labeled 0, 25, 50, 75 with one line between each pair. What is each small line worth?
- A. 5
 - B. 12.5 ✓**
 - C. 25
 - D. 50

Answer: B. From 0 to 25 there are two spaces, so each is $25 \div 2 = 12.5$.

8. A question asks for the CHANGE in temperature from 40° on Monday to 65° on Friday. What is the change?

- A. 25 degrees ✓**
- B. 40 degrees
- C. 65 degrees
- D. 105 degrees

Answer: A. Change means subtract: $65 - 40 = 25$ degrees.

9. In a pie chart, which slice shows the largest part of the whole?

- A. The smallest slice
- B. The biggest slice ✓**
- C. The top slice
- D. They are all equal

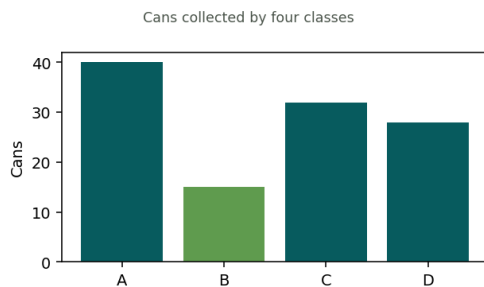
Answer: B. In a pie chart, the biggest slice is the largest share of the whole.

10. Before reading the numbers on any graph, what should you check first?

- A. The color of the bars
- B. The title, axis labels, and units ✓**
- C. The size of the paper
- D. The last data point

Answer: B. The title, labels, and units tell you what the graph is about and what the numbers mean. Always read them first.

11. Which class collected the FEWEST cans?



- A. Class A
- B. Class B ✓**
- C. Class C
- D. Class D

Answer: B. The shortest bar is Class B at 15 — the fewest cans.

12. On a line graph, a flat (horizontal) section means:

- A. The value is rising fast
- B. The value is falling
- C. No change during that time ✓**
- D. The graph is broken

Answer: C. A flat line means the value stays the same — no change during that stretch of time.

13. On a pie chart, a slice that fills about half the circle represents about:

- A. 10%
- B. 25%
- C. 50% ✓**
- D. 90%

Answer: C. The whole circle is 100%, so a slice filling half the circle is about 50%.

Basic Math Reminders

1. What is 25 out of 50 written as a percent?

- A. 10%
- B. 25%
- C. 50% ✓**
- D. 75%

Answer: C. $25 \div 50 = 0.5 = 50\%$.

2. What is the average (mean) of 10, 20, and 30?

- A. 10
- B. 20 ✓**
- C. 30
- D. 60

Answer: B. Add them (60), then divide by 3: $60 \div 3 = 20$.

3. What is $\frac{1}{4}$ written as a decimal?

- A. 0.14
- B. 0.25 ✓**
- C. 0.40
- D. 0.50

Answer: B. Divide top by bottom: $1 \div 4 = 0.25$.

4. What is 10% of 200?

- A. 2
- B. 10
- C. 20 ✓**
- D. 100

Answer: C. $10\% = 0.10$, and $0.10 \times 200 = 20$.

5. Round 68 to the nearest ten.

A. 60

B. 65

C. 70 ✓

D. 80

Answer: C. *The ones digit is 8 (5 or more), so round up to 70.*