Semester 1

Standard Pace — Answer Key

Weeks 1–15

Week 1 | Lesson 1: Organizing Things into Categories — Answer Key

Activity 1 — Does Not Belong

Answer: C — "Liquids take the shape of whatever container they are poured into."

This detail does not belong because it is about states of matter, not about organizing things into categories.

Activity 2 — Because / But / So (Sample Answers)

Because: Scientists sort things into categories because it helps them organize information and find patterns.

But: Scientists sort things into categories, but some things are hard to categorize because they share traits with multiple groups.

So: Scientists sort things into categories so they can compare objects and understand how they are related.

Activity 3 — Kernel Expansion (Sample Answer)

Categories help scientists by grouping similar things together so they can organize information and find patterns in the world.

Activity 4 — Sentence Types (Sample Answers)

Statement: Scientists use categories to organize the things they study.

Question: How do scientists decide which category an object belongs in?

Exclamation: Categories make science so much easier to understand!

Command: Sort these objects into groups based on what they have in common.

Week 2 | Lesson 2: Solids, Liquids, and Gases — Answer Key

Activity 1 — Fill in the Blank

1. **solid** → A solid holds its own shape without a container.
2. **liquid** → A liquid takes the shape of whatever it is poured into.
3. **gas** → A gas spreads out to fill any space.
4. **shape** → Liquids flow and change their shape, but not their amount.
5. **gas** → Air is a type of gas.

Activity 2 — Fragments (Sample Answers)

1. Water flows into any container and takes its shape.

2. A rock is a solid like a rock that holds its shape without a container.

Activity 3 — Sentence Combining (Sample Answers)

1. Water is a liquid that flows and takes the shape of its container.

2. Even though sand looks like it flows, each grain of sand is actually a solid.

Activity 4 — Run-on Sentences (Sample Answers)

1. A solid holds its own shape. A liquid flows and takes the shape of its container.

2. Gases spread out and fill any space they are in. You cannot hold a gas in your hands.

Week 3 | Lesson 3: Gravity Introduction — Answer Key

Activity 1 — Because / But / So (Sample Answers)

Because: Gravity pulls things toward the Earth because it is a force that attracts objects toward Earth's center.

But: Gravity pulls things toward the Earth, but objects in orbit keep missing the surface because they are also moving sideways.

So: Gravity pulls things toward the Earth so anything dropped will fall down instead of floating away.

Activity 2 — True or False

1. **TRUE** — Gravity pulls things toward the center of the Earth.
2. **FALSE** — People in Australia are pulled toward Earth's center like everyone else; they do not fall off.
3. **TRUE** — Weight is the measure of how hard gravity pulls on something.

Activity 3 — Kernel Expansion (Sample Answer)

Gravity pulls all objects with mass toward the center of the Earth.

Activity 4 — Questions from Statements (Sample Answers)

Statement 1, Q1: What is weight?

Statement 1, Q2: How does gravity affect the weight of an object?

Statement 2, Q1: Are people in Australia affected by gravity the same way as everyone else?

Statement 2, Q2: Why don't people in Australia fall off the Earth?

Week 4 | Lesson 4: States of Matter: Changes with Temperature — Answer Key

Activity 1 — Because / But / So (Sample Answers)

Because: Matter can change from one form to another because adding or removing heat changes how particles move.

But: Matter can change from one form to another, but the particles themselves stay the same.

So: Matter can change from one form to another, so ice can melt into water and water can freeze back into ice.

Activity 2 — Fill in the Blank

1. **melting** → When a solid gets warm enough and becomes a liquid, that is called melting.
2. **freezing** → When a liquid gets cold enough and becomes a solid, that is called freezing.
3. **evaporation** → When a liquid gets very hot and turns into a gas, that is called evaporation.
4. **matter** → Anything that has weight and takes up space is called matter.
5. **weight** → Heat and light are not matter because they have no weight.

Activity 3 — Scrambled Sentences

1. Changing a solid into a liquid is called melting.

2. When water boils, it turns into a gas called water vapor.

Activity 4 — Sentence Combining (Sample Answers)

1. Melting happens when a solid gets warm enough to become a liquid.

2. Freezing happens when a liquid gets cold enough to turn into a solid.

Week 5 | Lesson 5: Orbits and Gravity in Space — Answer Key

Activity 1 — Fill in the Blank

1. **orbit** → The path the Moon travels around Earth is called an orbit.
2. **free fall** → An orbiting object is always in a state of free fall toward what it circles.
3. **sideways** → The Moon moves sideways fast enough to keep missing Earth.
4. **Gravity** → Gravity is the force that pulls the Moon toward Earth.
5. **balance** → An orbit is the balance between falling inward and moving forward.

Activity 2 — Because / But / So (Sample Answers)

Because: The Moon stays in orbit around Earth because gravity pulls it inward while its sideways motion keeps it from falling in.

But: The Moon stays in orbit around Earth, but without gravity it would fly off in a straight line into space.

So: The Moon stays in orbit around Earth, so we always have a moon visible in our night sky.

Activity 3 — True or False

1. **TRUE** — The Moon is in a constant state of free fall toward Earth.
2. **TRUE** — Without gravity, the Moon would fly off in a straight line into space.
3. **TRUE** — An orbit is the balance between falling inward and moving sideways.
4. **FALSE** — Earth orbits the sun for the same reason the Moon orbits Earth — the balance of gravity and sideways motion.

Week 6 | Lesson 6: What is Energy? — Answer Key

Activity 1 — Because / But / So (Sample Answers)

Because: Energy cannot be created or destroyed because it is a fundamental law of nature called conservation of energy.

But: Energy cannot be created or destroyed, but it can change from one form to another.

So: Energy cannot be created or destroyed, so the total amount of energy in the universe always stays the same.

Activity 2 — True or False

1. **TRUE** — Energy makes things move, change, and happen.
2. **FALSE** — Energy cannot be created, even with heat.
3. **TRUE** — Electrical, heat, light, and movement are all forms of energy.
4. **TRUE** — When a lamp turns on, electrical energy changes into light and heat energy.

Activity 3 — Sentence Combining (Sample Answers)

1. Energy comes in many forms, including heat, light, and movement.

2. A lamp uses electricity, which changes into both light and heat energy.

Week 7 | Lesson 7: Air is Real — Answer Key

Activity 1 — True or False

1. **TRUE** — Air takes up space even though you cannot see it.
2. **FALSE** — A fuller balloon is heavier, not lighter, because it has more air inside.
3. **TRUE** — Moving air is called wind.
4. **FALSE** — Air has weight even though it is invisible.

Activity 2 — Because / But / So (Sample Answers)

Because: Air takes up space and has weight because it is made of gas particles that have mass.

But: Air takes up space and has weight, but you cannot see it with your eyes.

So: Air takes up space and has weight, so a fuller balloon is heavier than an empty one.

Activity 3 — Questions from Statements (Sample Answers)

Statement 1, Q1: Does air take up space?

Statement 1, Q2: Can something have weight even if you cannot see it?

Statement 2, Q1: Why is a fuller balloon heavier than an empty one?

Statement 2, Q2: What adds weight to a balloon?

Week 8 | Lesson 8: Energy Transformation — Answer Key

Activity 1 — Fill in the Blank

1. **transformation** → When energy changes from one form to another, it is called an energy transformation.
2. **stored** → A wound-up spring has stored energy ready to be released.
3. **travels** → Light energy travels from the sun to the Earth.
4. **renewable** → The sun and wind are examples of renewable energy sources.
5. **nonrenewable** → Coal and oil are nonrenewable because once they are used, they are gone.

Activity 2 — Scrambled Sentences

1. Energy changes from one form to another.

2. Renewable sources can be used over and over again.

Activity 3 — Sentence Types (Sample Answers)

Statement: Energy can change from one form to another in a process called transformation.

Question: What happens to energy when it changes form?

Exclamation: It is amazing how many forms energy can take!

Command: Name three examples of energy transformation in everyday life.

Activity 4 — Sentence Combining (Sample Answers)

1. The sun produces light energy, which plants use to grow.

2. Coal is a source of energy that took millions of years to form.

Week 9 | Lesson 9: Air and the Atmosphere — Answer Key

Activity 1 — True or False

1. **TRUE** — The atmosphere is a blanket of air that surrounds the Earth.
2. **FALSE** — The atmosphere gets thinner as you go higher, not the same thickness throughout.
3. **TRUE** — Gravity holds the atmosphere close to the Earth.
4. **FALSE** — Astronauts cannot breathe normally in space; they need sealed suits.

Activity 2 — Because / But / So (Sample Answers)

Because: The atmosphere is held close to the Earth by gravity because gravity pulls everything toward Earth's center.

But: The atmosphere is held close to the Earth by gravity, but it still gets thinner the higher you go.

So: The atmosphere is held close to the Earth by gravity, so air stays near the surface where living things can breathe.

Activity 3 — Kernel Expansion (Sample Answer)

The atmosphere surrounds Earth as a thick blanket of air that is held in place by gravity and provides the air living things need to breathe.

Activity 4 — Run-on Sentences (Sample Answers)

1. The atmosphere surrounds the Earth and is held close by gravity. Without it, air would drift into space.

2. Astronauts cannot breathe in space because there is no air there. They must wear sealed suits filled with air.

Week 10 | Lesson 10: Categorizing the World Around Us — Answer Key

Activity 1 — Because / But / So (Sample Answers)

Because: Everything in our world can be placed into one of three groups because all things are either living, natural earth materials, or human-made.

But: Everything in our world can be placed into one of three groups, but some things can be tricky to categorize.

So: Everything in our world can be placed into one of three groups, so scientists can better organize and study the world around them.

Activity 2 — Fragments (Sample Answers)

1. A living thing grows, reproduces, and needs food or energy.

2. A human-made object is made by people from natural materials.

Activity 3 — Scrambled Sentences

1. A dog is a living thing because it grows and reproduces.

2. Tables and cars are human-made because people built them.

Activity 4 — Questions from Statements (Sample Answers)

Statement 1, Q1: What kind of material is honey?

Statement 1, Q2: Why is honey considered a biological material?

Statement 2, Q1: Is a wooden table considered a natural or human-made object?

Statement 2, Q2: Why is a wooden table considered human-made even though it comes from wood?

Week 11 | Lesson 11: Matter is Made of Particles — Answer Key

Activity 1 — Because / But / So (Sample Answers)

Because: All matter is made of particles too tiny to see because particles exist at a scale much smaller than what our eyes can detect.

But: All matter is made of particles too tiny to see, but we can observe their effects through dissolving and spreading smells.

So: All matter is made of particles too tiny to see, so scientists use indirect evidence to know they exist.

Activity 2 — Fill in the Blank

1. **particles** → All matter is made of tiny particles that are too small to see.
2. **invisible** → Particles are invisible because you cannot see them with the naked eye.
3. **dissolves** → When salt dissolves in water, it breaks into particles too small to see.
4. **spreads** → The smell of perfume spreads through the air as particles move in all directions.
5. **evidence** → Clues like dissolving and spreading smells give us evidence that particles exist.

Activity 3 — True or False

1. **TRUE** — All matter, including rocks, water, and air, is made of tiny particles.
2. **FALSE** — Scientists cannot see individual particles directly; they use indirect evidence.
3. **FALSE** — Salt does not disappear; its particles are still in the water, just too small to see.
4. **TRUE** — The particles in perfume travel through the air and reach your nose.

Week 12 | Lesson 12: Distinguishing Living Things — Answer Key

Activity 1 — Does Not Belong

Answer: C — "Solids hold their shape because their particles are packed tightly."

This detail does not belong because it is about states of matter, not about what makes something a living thing.

Activity 2 — True or False

1. **FALSE** — Something must meet ALL criteria — not just one or two — to be considered living.
2. **TRUE** — Fire is not alive because it cannot reproduce.
3. **TRUE** — Living things must grow, reproduce, respond to surroundings, and need energy.
4. **FALSE** — A crystal that grows is not considered a living thing because it cannot reproduce or respond.

Activity 3 — Sentence Combining (Sample Answers)

1. Fire grows bigger, but it cannot reproduce and does not need food the way living things do.

2. Although crystals can be grown, they do not reproduce or respond to surroundings, so they are not considered living.

Week 13 | Lesson 13: Changes in Particles with States of Matter — Answer Key

Activity 1 — Fill in the Blank

1. **solid** → In a solid, particles are tightly bonded and locked in fixed positions.
2. **vibrate** → Particles in a solid vibrate in place but do not move past each other.
3. **volume** → A liquid has a definite volume but takes the shape of its container.
4. **liquid** → In a liquid, particles are close but can slide freely past one another.
5. **gas** → In a gas, particles move rapidly with large spaces between them.

Activity 2 — Because / But / So (Sample Answers)

Because: In a solid, particles are locked in fixed positions because the bonds holding them together are too strong for them to move past each other.

But: In a solid, particles are locked in fixed positions, but they still vibrate in place.

So: In a solid, particles are locked in fixed positions, so solids hold their shape without a container.

Activity 3 — True or False

1. **TRUE** — In a solid, particles are tightly bonded in fixed positions and cannot move past each other.
2. **FALSE** — A liquid has a definite volume; only its shape changes, not the amount.
3. **TRUE** — In a gas, particles move rapidly in all directions with large spaces between them.
4. **FALSE** — When matter changes state, the particles themselves do not change — only their arrangement and movement changes.

Activity 4 — Sentence Combining (Sample Answers)

1. In a solid, particles are tightly bonded and do not move past each other.

2. A liquid has no fixed shape because its particles can slide freely past each other.

Week 14 | Lesson 14: Technology, Tools, and Animals — Answer Key

Activity 1 — Because / But / So (Sample Answers)

Because: All human-made things start as biological or natural earth materials because humans use what exists in nature to build and create.

But: All human-made things start as biological or natural earth materials, but once shaped by human hands, they are considered human-made objects.

So: All human-made things start as biological or natural earth materials, so even a metal car originally comes from iron ore found in the ground.

Activity 2 — Single-Paragraph Outline (Sample Answer)

Topic Sentence: Living things and machines get their energy in very different ways.

Detail 1: Machines need energy from outside, like gasoline or electricity, to work.

Detail 2: Living things generate their own energy by eating food.

Detail 3: A dog uses the energy from its food to run, grow, and stay alive.

Activity 3 — Sentence Types (Sample Answers)

Statement: Machines need an outside source of energy, while living things make their own energy from food.

Question: How do living things get the energy they need to survive?

Exclamation: It is incredible how living things can turn food into energy!

Command: Compare how a car and a dog each get the energy they need to move.

Week 15 | Lesson 15: Reversible and Nonreversible Changes — Answer Key

Activity 1 — Does Not Belong

Answer: B — "Gravity pulls all objects toward the center of the Earth."

This detail does not belong because it is about gravity, not about reversible and nonreversible changes.

Activity 2 — Because / But / So (Sample Answers)

Because: Burning wood is a nonreversible change because the wood turns into ash and smoke, which cannot be put back together.

But: Burning wood is a nonreversible change, but melting wax is reversible because the wax can be cooled and hardened again.

So: Burning wood is a nonreversible change, so once wood has burned, it can never be turned back into wood.

Activity 3 — Fill in the Blank

1. **reversible** → Melting and freezing are reversible changes because the substance returns to its original form.
2. **condensation** → When water vapor cools and turns back into liquid, that process is called condensation.
3. **nonreversible** → Burning and rusting are nonreversible changes because the original substance cannot be restored.
4. **chemical** → Scientists call nonreversible changes chemical changes.
5. **particles** → Whether a change is reversible depends on what happens to the particles of the substance.