**FIFTH GRADE TOP 100 SCIENCE FACTS**

**Ecosystems**

1. An **ecosystem** is all the living and nonliving things in an area and how they interact.
2. The **nonliving (abiotic)** parts of an ecosystem include air, water, soil, temperature, and sunlight.
3. The **living (biotic)** parts of an ecosystem include animals, plants, insects, protists, worms, fungus, and bacteria.
4. A **population** is a groupof organisms of one species that live in an area at the same time.
5. A **community** is made up of all the populations in an area.
6. An **individual** is one single organism in an ecosystem.
7. A **biome** is a large ecosystem with its own kind of climate, soil, plants, and animals.
8. A **niche** is the role (job) that an organism has in an ecosystem.
9. A **habitat** is a place in which an organism lives.
10. **Land ecosystems** include tropical rainforests, deciduous forests, grasslands, taigas, deserts, and tundras.
11. **Water ecosystems** include rivers, wetlands, coral reefs, and the deep sea.
12. **Limiting factors** (amount of food, water, space, shelter) control the number of organisms that can live in an ecosystem.
13. The **carrying capacity** is the number of organisms that can live in a place.
14. **Competition** is the struggle among organisms for the same limited resources.
15. **Symbiosis** is a long-term relationship between different species.
16. **Mutualism** is where both species benefit.
17. **Commensalism** is where one species benefits and the other is unaffected.
18. **Parasitism** is where one species benefits and the other is harmed.
19. **Producers** (plants and some microorganisms) are the foundation of the food web.
20. **Photosynthesis** is the process by which green plants use sunlight to make food.
21. **Consumers** (animals) get their energy by eating plants and other animals that eat plants.
22. **Herbivores** eat only plants.
23. **Carnivores (predators)** only eat other animals **(prey)**.
24. **Omnivores** eat both plants and animals.
25. **Decomposers** (mostly bacteria and fungi) are consumers that break down waste materials and dead organisms for food.
26. A **food chain** is a series of steps by which energy moves from one type of living thing to another.
27. A **food web** is the overlapping food chains in an ecosystem.
28. An **energy pyramid** is a diagram that shows the amounts of energy that flow through each level of a food chain.
29. A **species** is a group of similar organisms that can mate and produce offspring that can also produce offspring.
30. **Nonnative species (exotic species, invaders, aliens)** can cause great damage to an ecosystem.

**Ecosystems (continued)**

1. A **threatened species** is in danger of becoming endangered. An **endangered species** is in danger of becoming extinct.
2. A species that is **extinct** has died out completely.
3. **Adaptations** are characteristics that enable living things to survive in their environments.
4. A **structural adaptation** is a body part that helps an organism survive.
5. A **behavioral adaptation** is a behavior that helps an animal survive.
6. **Conservation** is an attempt to save, protect, or use resources wisely.
7. A **watershed** is an area from which water is drained and then flows into a larger body of water.
8. **Ecology** is the study of interactions among organisms and their environment.
9. **Rain gardens** are beneficial because they help keep water clean by filtering runoff before it enters local waterways.

**Forces and Motion**

1. A **force** is a push or pull that acts on an object.
2. **Inertia** is the tendency of an object to resist any change in motion.
3. **Friction** is the force that acts against moving objects.
4. **Newton’s first law of motion:** Objects at rest remain at rest and objects traveling at a steady rate in a straight line continue that way until a force acts on them.
5. **Newton’s second law of motion:** When an unbalanced force acts on an object, the object’s acceleration equals the force divided by the object’s mass.
6. **Newton’s third law of motion:** For every action, there is an equal but opposite reaction.
7. **Position** is the location of an object.
8. **Speed** is how fast an object’s position changes with time at any moment.
9. **Velocity** is the speed and direction of a moving object.
10. **Acceleration** is the change in velocity with respect to time.
11. **Mass** is a measure of the amount of matter in an object.
12. **Weight** is a measure of the gravitational force between an object and the Earth.
13. **Balanced forces** are forces that cancel each other out when acting together on a single object.
14. **Unbalanced forces** are forces that do not cancel each other out when acting together on a single object.
15. **Action** is the force one object applies to a second object.
16. **Reaction** is the force with which an object responds to an action.
17. **Gravity** is the force of attraction between any two objects due to their mass.
18. **Kinetic energy** is the energy of any moving object.
19. **Potential energy** is stored energy.
20. A **newton** is a basic unit measuring the amount of pull or push a force produces.

**Sound & Light**

1. **Vibration** is the back-and-forth motion that causes sound.
2. Sound must travel through **matter** to move from one place to another.
3. A **sound wave** is a vibration that spreads away from a vibrating object.
4. **Pitch** is how high or low a sound is; Objects that vibrate slowly produce low pitches; objects that vibrate quickly produce high pitches.
5. **Frequency** is the number of times an object vibrates per second.
6. A **hertz** is a unit for measuring frequency – One hertz equals a frequency of one vibration per second.
7. **Volume** is how loud or soft a sound is.
8. A **decibel is** a unit that measures loudness.
9. **Reflection** is the bouncing of a sound wave off a surface.
10. **Absorption** is the disappearance of a sound wave into a surface.
11. An **echo** is a reflected sound wave.
12. A **vacuum** is an empty space that contains no air or other matter.
13. A **light ray** is a straight beam of light that travels outward from its source.
14. The **law of reflection** states that the angle between an incoming light ray and a surface equals the angle between the reflected light ray and the surface.
15. **Concave lenses** make images appear smaller; **Concave mirrors** curve in on the shiny side.
16. **Convex lenses** make images appear larger; **Convex mirrors** curve out on the shiny side.
17. **Opaque** materials completely block light from passing through them.
18. **Transparent** materials let all light through, so that objects on the other side can be seen clearly.
19. **Translucent** materials let only some light through, so that objects on the other side appear blurry.
20. **Refraction** is the bending of light rays as they pass from one substance (medium) into another.
21. A **prism** is a cut piece of clear glass or plastic that bends white light into the rainbow colors.
22. A **spectrum** is a band of colors produced when light goes through a prism.
23. **Visible light** (**white light**) is a mixture of the rainbow colors (red, orange, yellow, green, blue, indigo, violet).
24. The **electromagnetic spectrum** is all the wavelengths of light, the ones we see and the ones we cannot see.

**Outer Space**

1. The **solar system** is made of the sun, eight planets, dwarf planets, moons, asteroids, and comets.
2. A **revolution** is one full orbit around the sun. Earth’s **revolution** around the sun takes approximately 365.25 days (one year).
3. An **axis** is an imaginary center line around which an object spins. Earth’s **axis** is tilted at a 23.5 degree angle.
4. A **rotation** is one whole spin of an object on its axis. Earth’s **rotation** on its axis takes approximately 24 hours, producing day and night.
5. **Seasons** are caused by Earth’s tilt on its axis along with Earth’s revolution around the sun.
6. **Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus,** and **Neptune** are the eight planets in the solar system.
7. A **dwarf planet** is a small, spherical object that orbits the sun. Pluto is a dwarf planet.
8. A **moon** is a natural object that revolves around a planet.
9. **Space probes** are spacecraft that gather data without a crew.
10. **Comets** are frozen masses of ice and dust that orbit the sun.
11. **Asteroids** are small, rocky objects that orbit the Sun in a belt between the orbits of Mars and Jupiter (the asteroid belt).
12. **Meteoroids** are small asteroids.
13. A **meteor (“shooting star”)** is a chunk of rock from space that burns up as it travels through Earth’s atmosphere – A “shooting star.”
14. A **meteorite** is a chunk of rock from space that strikes the surface of Earth or the moon.
15. A **satellite** is a moon, rock, or anything that orbits another object.
16. A **constellation** is a group of stars that forms a pattern.
17. A **galaxy** is a collection of billions of stars. Our sun belongs to the Milky Way Galaxy.