FIFTH GRADE TOP 100 SCIENCE FACTS
2017-2018

Ecosystems

1. An **ecosystem** is all the biotic (living) and abiotic (nonliving) things in an area and how they interact.
2. A **population** is all the members of one species that live in an area at the same time.
3. A **community** is made up of all organisms interacting in an ecosystem.
4. An **individual** is one single organism in an ecosystem.
5. A **species** is a unique kind of living organism.
6. **Symbiosis** is a relationship between two kinds of organisms that lasts over time.
7. **Mutualism** is a symbiotic relationship where both species benefit.
8. **Commensalism** is a symbiotic relationship where one species benefits and the other is unaffected.
9. **Parasitism** is a symbiotic relationship where one species benefits and the other is harmed.
10. **Producers** (plants) are the foundation of the food web.
11. **Photosynthesis** is the process by which producers use sunlight to make their own food.
12. **Sunlight** is the primary source of energy for most ecosystems.
13. **Consumers** (animals) get their energy by eating plants and other animals that eat plants.
14. **Herbivores** are organisms that only eat plants.
15. **Carnivores** are organisms that only eat other animals.
16. A **predator** is an animal that hunts other animals for food. **Prey** is an animal that is hunted and eaten by a predator.
17. **Omnivores** are organisms that eat both plants and animals.
18. **Scavengers** are meat-eating animals that feed on the remains of dead animals.
19. **Decomposers** are organisms that break down dead plants and animals into useful things like minerals and rich soil.
20. **Fungi, bacteria,** and **insects** ("FBI") are decomposers.
21. A **food chain** shows the path that energy and nutrients flow in an ecosystem.
22. A **food web** is the overlapping food chains in an ecosystem.
23. **Invasive species** are not native to an area. They interact and sometimes cause great damage to existing ecosystems.
24. A **threatened** species is in danger of becoming endangered.
25. An **endangered** species is in danger of becoming extinct.
26. An **extinct** species has died out completely.

Forces & Motion

27. A **force** is a push or pull that causes an object to move, stop, or change direction.
28. **Inertia** is a property of matter that keeps an object at rest or moving in a straight line.
29. **Newton's first law of motion:** Objects at rest stay at rest and objects in motion stay in motion unless acted on by an unequal force.
30. **Newton's second law of motion:** The acceleration of an object depends on the mass of the object and the size of force applied to it.
31. **Newton's third law of motion:** For every action, there is an equal and opposite reaction.
32. **Speed** is how fast or slow the movement is. It is calculated by dividing distance by time.
33. **Force diagrams** show all the different types of forces acting on objects and their relationships to one another.
34. **Distance** is how far it is from one point to another.
35. **Mass** is the amount of matter in an object.
36. **Weight** is a measure of the gravitational force between an object and the Earth.
37. **Balanced forces** cancel each other out because they are equal in strength and opposite in direction.
38. **Unbalanced forces** do not cancel each other out when acting together on a single object. They cause motion.
39. **Net force** is the combination of all the forces acting on an object.
40. **Gravity** is a force of attraction between any two objects due to their mass. Earth pulls down on all objects with **gravitational force**.
41. **Friction** is a force that happens when two surfaces touch or rub together.
42. The **types of friction** are air resistance, rolling friction, sliding friction, and static friction.
43. **Air resistance** is a type of friction that happens when an object moves or falls through the air.
44. **Kinetic energy** is the energy of any moving object.
45. **Potential energy** is energy that is stored in an object due to its position.
46. **Buoyancy** is the upward force exerted on an object by water.
47. A **newton** is a basic unit measuring the amount of push or pull a force produces.

Sound

48. **Vibration** is the back-and-forth motion of an object that causes sound.
49. **Transmission** is when sound travels through an object.
50. Sound must travel through a material **(medium)** to move from one place to another.
51. Sound travels at **different speeds** through different materials (media).
52. Sound **travels best** through solids because the molecules are packed more tightly.
53. A **vacuum** is an empty space that contains no air or other matter. Sound cannot travel through a vacuum.
54. A **sound wave** is a vibration that spreads away from a vibrating object.
55. **Pitch** is how high or low a sound is; Objects that vibrate slowly produce low pitches; objects that vibrate quickly produce high pitches.
56. **Volume** is how loud or soft a sound is.
57. A **decibel** is a unit that measures the loudness or softness of a sound.
58. **Reflection** is the bouncing of a sound wave off a surface.
59. When sound waves hit a hard, smooth surface, much of the energy is **reflected.**
60. An **echo** is a reflected sound wave.
61. **Absorption** is the "disappearance" of a sound wave into a surface.
62. When sound waves hit a soft, textured surface, much of the energy is **absorbed**.

Light

63. **Transmission** is when light travels through an object.
64. Light can travel through **some materials** as well as empty space (a **vacuum**).
65. Light travels in a **straight line** until it interacts with another object.
66. A **light ray** is a straight beam of light that travels outward from its source.
67. Light travels **faster** than sound.
68. **Transparent** materials allow light to pass through them, so that objects on the other side can be seen clearly. Examples are glass, water, and windows.
69. **Translucent** materials allow light to pass through them, but they scatter it, so that objects on the other side appear blurry. Examples are waxed paper, ice, and glass block windows.
70. **Opaque** materials do not allow light to pass through them. Examples are wood blocks, metal spoons, and cardboard.
71. **Shadows** are formed when light strikes objects through which it cannot pass.
72. **Reflection** is the bouncing of light rays off a surface.
73. The **law of reflection** states that the angle of incidence equals the angle of reflection ("angle in equals angle out").
74. **Reflected colors** are the only colors visible when looking at an object – All the other colors are absorbed.
75. Light can be **absorbed** by objects, causing them to warm.
76. **Refraction** is the bending ("breaking") of light rays as they pass from one substance (medium) into another.

77. A **prism** is a cut piece of clear glass or plastic. It is a tool that bends white light and separates it into the rainbow colors.
78. The visible **spectrum** is a band of colors produced when light goes through a prism.
79. **Visible light** (**white light**) is a mixture of the rainbow colors (red, orange, yellow, green, blue, indigo, violet).

Outer Space

80. Our **solar system** includes the sun and all the bodies that orbit it.
81. A **revolution** is one full orbit around the sun. Earth's **revolution** around the sun takes approximately 365.25 days (one year).
82. An **orbit** is the path one body takes in space as it revolves around another body.
83. Earth's **axis** is an imaginary line that passes through Earth's center and its North and South Poles.
84. 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.
85. **Seasons** are caused by Earth's tilt on its axis along with Earth's revolution around the sun.
86. **Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus,** and **Neptune** are the eight major planets that orbit the sun.
87. **Dwarf planets** orbit the sun and have a nearly round shape, but they have not cleared the neighborhood around their orbits. Ceres, Pluto, Haumea, Makemake, and Eris are dwarf planets.
88. A **moon** is a natural object that revolves around a planet.
89. A **moon phase** is one of the shapes the moon seems to have as it orbits Earth.
90. **Comets** are a mixture of ice and dust ("dirty snowballs") that have unusual orbits around the sun.
91. **Asteroids** are metallic, rocky objects that orbit the sun in a belt between the orbits of Mars and Jupiter (the asteroid belt).
92. **Meteoroids** are rock and debris particles that are smaller than asteroids.
93. A **meteor ("shooting star")** is a chunk of rock from space that burns up as it travels through Earth's atmosphere.
94. A **meteorite** is a chunk of rock from space that survived falling through Earth's atmosphere and collided with Earth's surface.
95. A **satellite** is a moon, rock, or other object that orbits another larger object.
96. A **sun** is a huge ball of very hot gases in space. Our **sun** is the only star in our solar system.
97. A **constellation** is a group of stars that forms a pattern. The Big Dipper, Orion the Hunter, and Leo the Lion are famous constellations.
98. A **galaxy** is a group of gas, dust, and many stars. Our sun belongs to the Milky Way Galaxy.
99. A **space station** is a place where people can live and work in space for long periods of time.
100. **Technology** is the use of scientific knowledge for a purpose. An **inventor** is someone who uses technology to develop a new device or process, or to solve a problem.