

Earth and Space Award

The Sun gives us warmth and light.

The Earth orbits the sun taking 365 days.

The Earth takes 24 hours to spin once.

The moon orbits the Earth taking 28 days.

Gravity is a pulling force. It pulls up and everything else to Earth.

Shadows form when the light is blocked. Shadows move and change size as the Earth spins. When the Sun is overhead, shadows are shortest.

1 got their FIRST certificate!!!

Rocks and Soils Award

There are hundreds of different types of rocks and soils. So it is helpful to group them. Because there are so many, using a classification key is a useful way to identify them.

Is it black?
 Yes: **Basalt**
 No: **Granite**

Does it have layers?
 Yes: **Sandstone**
 No: **Limestone**

Does it fizz with vinegar?
 Yes: **Marble**
 No: **Quartz**

Is it smooth?
 Yes: **Quartz**
 No: **Marble**

2 got their SECOND certificate!!!

Solids, Liquids and Gases Award

Solids: Keep their own shape and cannot be squashed. They will also not flow (although small particles like sand can appear to flow).
 metal, wood, ice

Liquids: Change their shape to fit the container they are in. It is very difficult to squash a liquid. They flow very easily.
 oil, water, shampoo

Gases: Do not have any particular shape. Gases are easily squashed, but will push back. They also flow very easily.
 air, water vapour (steam)

3 got their THIRD certificate!!!

Water Cycle Award

Precipitation: The water can't hold the water any more, causing rain or snow to fall.

Evaporation: Evaporation warms or cools the sea water from liquid to gas (vapour).

Condensation: cooler air causes the vapour to turn back to liquid forming clouds.

Runoff: The water returns to the sea through rivers and groundwater.

Winds: blows the clouds inland, and they rise to get over hills causing them to meet colder air.

4 got their FOURTH certificate!!!

Changing Materials Award

There are 3 states of matter: **Solid**, **Liquid** and **Gas**. Some materials can change between these states. For water: **Liquid** → **Liquid** = melt **Gas** → **Liquid** = condense **Liquid** → **Solid** = freeze

Reversible changes: when materials can change state and then go back again. For example, candle wax. **Irreversible changes:** when materials can change state but cannot change back. For example, burning wood.

The candle wax is reversible as it can change between solid and liquid depending on the heat. The wax (string) is irreversible as when it burns, it cannot change back.

5 got their FIFTH certificate!!!

Separating Materials Award

To separate soluble materials (long short dyes) such as salt from water, we need evaporation where water turns to vapour (gas), leaving behind just the salt.

If the material is insoluble such as sand, we can use filter paper to catch the sand, leaving the just water to filter through.

Magnets can also be used to separate magnetic materials such as iron and steel.

6 got their SIXTH certificate!!!

Properties of Materials Award

There are lots of words we can use to describe a material, here are just a few...

Permeable: liquid can pass through. **Impermeable:** liquid cannot pass through.

Conductor: to let something pass through. **Insulator:** to stop something passing through.

Transparent: light will pass through clearly (glass). **Translucent:** light will pass through, but the image will not be clear (paper).

Malleable: can be flattened. **Brittle:** breaks easily.

Heavy: has a lot of mass. **Light:** has a small mass.

Hard: difficult to scratch. **Soft:** easy to scratch.

7 got their SEVENTH certificate!!!

Magnets Award

Magnets have 2 poles (ends) known as north and south. They are often shown by different colours (for example red is north, south is white).

Magnets are a force. It can push or pull.
 Many metals
 Some poles will repel (push).

8 got their EIGHTH certificate!!!

Forces Award

Forces, measured in Newtons, either push or pull. Magnets is also a type of force that can push or pull. A spring will also push or pull depending on whether it is stretched or squashed.

Friction: pulls or slows objects that are moving. The rougher the surface, the more the friction.

Weight: the force that pulls objects down towards the ground.

Upthrust: pushes objects back up. It is equal to the weight of the object.

9 got their NINTH certificate!!!

Circuits Award

Circuits work when they are complete. This means there are no gaps in it.

Metal, such as copper, are great conductors of electricity. Plastic, wood, rubber are good electrical insulators.

Electricity is very dangerous. Water also easily conducts electricity and so should be kept away from electrical things.

A switch is able to break or complete a circuit depending on if it is open or closed.

More bulbs in a circuit will make them dimmer. More batteries will make them brighter.

Cells (batteries) need to be the same way round (- to +) to create the flow of electricity around the circuit.

10 got their TENTH certificate!!!

Light Award

Light travels in straight lines from a source.

The closer the object to the source, the larger the shadow.

Shadows form when light is blocked.

Light cannot bend, but reflects off objects.

11 got their ELEVENTH certificate!!!

Sound Award

Sound is vibration and it travels in all directions from the source.

Pitch describes how high or low a sound is. A tight string or drum skin will produce higher pitches. A smaller, shorter string will also produce a higher pitch.

Volume describes the loudness of a sound. The harder something is struck, plucked or hit, the louder the sound.

Sound can travel through solids, liquids and gases, but some materials are better than others. Metals resonate very well so why many instruments are made from it.

12 got their TWELFTH certificate!!!

Life Cycles Award

All living things, plants, animals, insects, bacteria, have the need to reproduce. This means to make sure their species carries on. Here are some examples of life cycles.

Amoeba: reproduce by splitting.

Plants: grow from seeds.

Animals: grow from eggs.

13 got their THIRTEENTH certificate!!!

Humans and Teeth Award

Brain: like a computer, controls everything around our body by sending signals through our nerve system.

Heart: pumps blood around the body. Pulse is faster when we work harder as the muscles need more oxygen. Blood goes up through arteries and returns to the heart through veins.

Lungs: oxygen goes into our lungs when we breathe. Before going into our blood.

Skeleton and Bones: Our skeleton helps us stand and stay upright. Our bones also protect our organs (for example, the skull protects the brain).

Molars: grind up the food.

Incisors: are sharp for cutting food.

Cavities: break food off our teeth.

14 got their FOURTEENTH certificate!!!

Being Healthy Award

Balanced Diet: your body needs all types of food, not just fats and sugars.

Exercise: the heart is made up of muscles which will keep it strong.

Fruit and Vegetables: for vitamins. Try to eat 5 different types a day.

Wash/Brush/Aggro/Brush: the protein that helps your body grow and repair.

Patience: for energy. Berries/milk for protein and calcium, which keeps our teeth and bones strong.

Teeth: need to be brushed at least twice a day. Food, especially sugary foods, sticks to your teeth.

15 got their FIFTEENTH certificate!!!

Microorganisms Award

To see Microorganisms you need a microscope. Some microorganisms are useful, some are harmful.

Viruses: These can make you feel sick, like when you have a cold. They can easily transfer from person to person.

Bacteria: often found in food that is rotting or not cooked enough.

Yeast: For bread to rise, it needs yeast. Yeast is a single-celled microorganism that makes milk thicken. Baking microorganisms are more old-fogy and plant life so decay. Fermentation is the process of making new plants to grow.

16 got their SIXTEENTH certificate!!!

Plants Award

Leaves: produce food for the plant using the photosynthesis.

Stems: leads to plant upright. Carries food and nutrients around the plant.

Roots: through which the plant collects water and nutrients from the soil. Also helps support the plant.

Flowers: these attract insects to help them. Using roots, the wind, sun, and water, or otherwise, the plant can digests (convert) the seeds. The stigma and style are the female parts of a flower. They produce the seed (pollination).

Plants need these to grow: Nutrients, Air, Warmth and Light, Water.

Germination: a seed needs water and warmth to grow.

17 got their SEVENTEENTH certificate!!!

Habitats and Adaption Award

Humps: stores fat so that it can survive for a long time without food and water.

Plants and animals have certain features that help them survive in their habitats (where they live).

Camel: found in dry and hot desert habitats.

Barbed Wire: grows in hot, dry, open habitats that need to be fenced in.

Banks: this is thick and tough to make walls on and one side is covered in grass to prevent soil from eroding.

Trunks: the large trunk helps to store water and to break up the dry soil.

18 got their EIGHTEENTH certificate!!!

Animals and Food Chains Award

Herbivores: animals that eat only plants.

Carnivores: animals that eat only other animals.

Omnivores: animals that eat both plants and animals.

Predator: an animal that hunts another animal. Prey is an animal that is hunted by another animal.

Food chain: if one part of the food chain disappears, the rest of the chain would not have food.

Producers: Make their own food (plants).

Consumers: Eat other animals or plants.

Vertebrates: animals with a backbone.

Invertebrates: animals without a backbone.

19 got their NINETEENTH certificate!!!

Science Skills Award

QUESTION: Can you think of a question that can be investigated?

PLAN: Can you choose the right apparatus to use?

PREDICT: Can you use your knowledge to predict what will happen?

FAIR: Change only the one thing you are testing.

RECORD: Can you see, smell, feel, or hear anything?

MEASURE: Can you use equipment to measure time, temperature, or etc?

RECORD: Can you organise your results in a table?

CONCLUDE: Can you use your results to explain what happened?

EVALUATE: How could you test this better?

20 got their TWENTIETH certificate!!!