

Numeracy Skills for Science

Tables Level 4

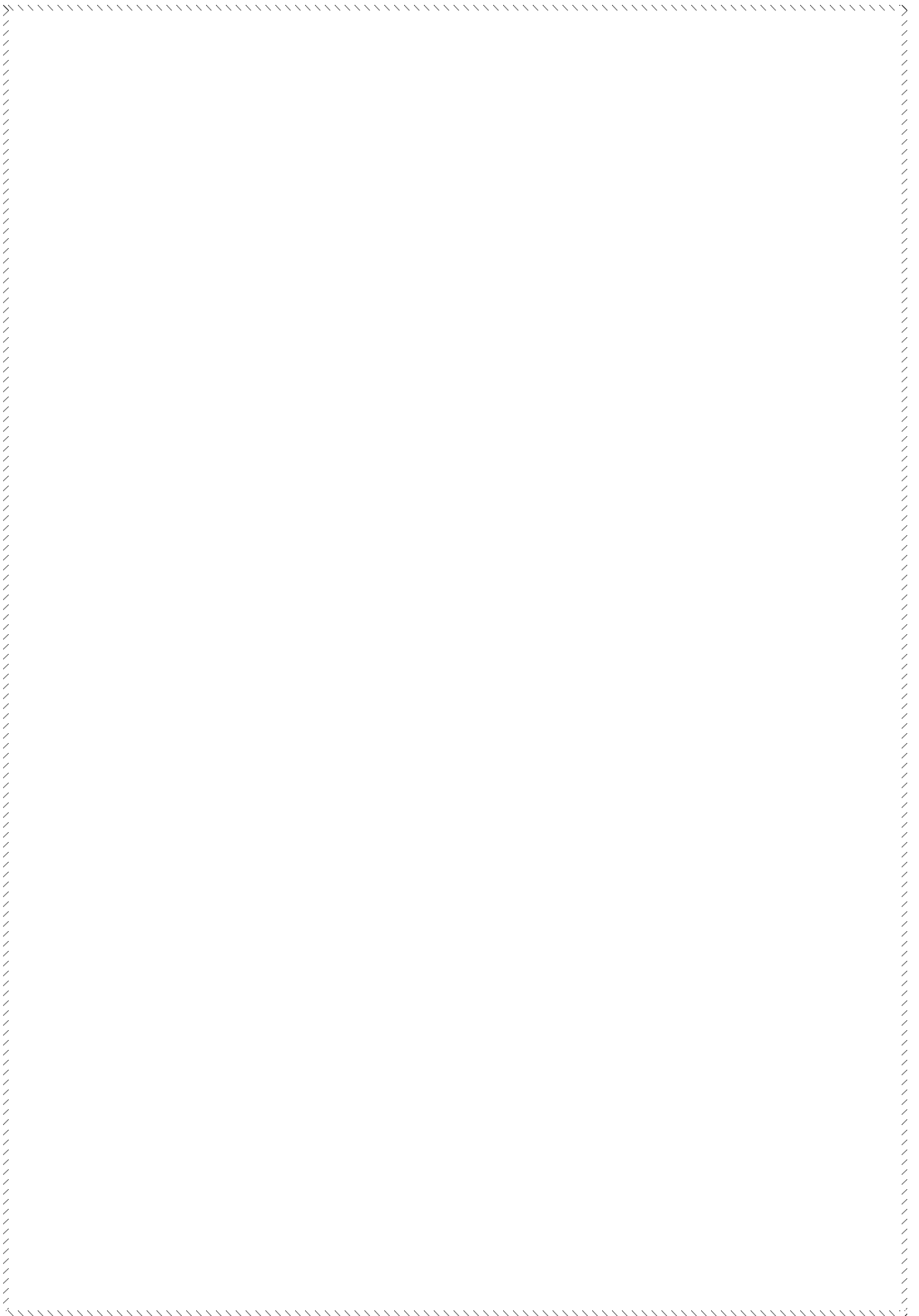
I can evaluate and interpret raw and graphical data using a variety of methods, comment on relationships I observe within the data and communicate my findings to others.

MNU 4-20a

Blood Group	Percentage of Pupils
O	55
A	25
AB	5
B	15

Name: _____

Class: _____



Showing Information in a Table

1. Reasons for showing information in a table

Compare the two ways of showing the same information below:

Paragraph

Alkaline batteries are used in cassette players and have a storage life of five years. Both silver oxide and zinc chloride batteries have a storage life of two years. Silver oxide batteries are used in calculators and zinc chloride batteries are used in torches. Computers have lithium batteries with a storage life of 10 years.

Table

Type of Battery	Storage life (years)	Uses
Alkaline	5	cassette players
Silver oxide	2	calculators
Zinc chloride	2	torches
Lithium	10	computers

Both give information about batteries. Which way of displaying information would you find easier if you wanted to know what type of battery to put in your **torch**?

Scientists use **Tables** to display information because:

- It is easier to find information in the Table.
- The information is organized in a logical, methodical way.
- The reader can ignore all the information he does not need.

2. How to Display Information in a Table

Example:

*Here is some information about different types of **batteries**.*

Alkaline batteries are used in cassette players and have a storage life of five years. Both silver oxide and zinc chloride batteries have a storage life of two years. Silver oxide batteries are used in calculators and zinc chloride batteries are used in torches. Computers have lithium batteries with a storage life of 10 years.

1. First, read the **description** before the paragraph.
2. Look at the paragraph of information.
Break it up. Either imagine each sentence on a different line **or** draw slashes to separate the sentences.

Alkaline batteries are used in cassette players and have a storage life of five years. / Both silver oxide and zinc chloride batteries have a storage life of two years. / Silver oxide batteries are used in calculators and zinc chloride batteries are used in torches. / Computers have lithium batteries with a storage life of 10 years. /

3. Now that it is broken up, read the sentences. You can see that
 - a) each sentence has a different **type of battery**. There are 4 types mentioned in the paragraph.
 - b) the sentences tell you about the **storage life** of each battery. The storage life of all the batteries is **in years**.
 - c) the sentences tell you the **uses** of the batteries.

These are the headings for your table.

- Use different coloured highlighters to mark them.
- Note that the information is **not** given in the same order in all the sentences.

Alkaline batteries are used in cassette players and have a storage life of five years. / Both silver oxide and zinc chloride batteries have a storage life of two years. / Silver oxide batteries are used in calculators and zinc chloride batteries are used in torches. / Computers have lithium batteries with a storage life of 10 years. /

Do not be worried if you have never heard of some of the things in the paragraph. You do not need to know anything about them. All you have to be able to do is put them in the table.

At Level 4, you will be given a table **without headings**, and asked to insert the information.

- Insert the headings.
- There are 4 blank rows, so start with the four **types of battery**.
- Look back at the information and fill in the **storage life in years** for each type of battery.
- Finally, fill in the **uses**.

Alkaline batteries are used in cassette players and have a storage life of five years. / Both silver oxide and zinc chloride batteries have a storage life of two years. / Silver oxide batteries are used in calculators and zinc chloride batteries are used in torches. / Computers have lithium batteries with a storage life of 10 years. /

Your table should look like this:

Type of Battery	Storage Life (years)	Uses
Alkaline	5	cassette players
Silver oxide	2	calculators
Zinc chloride	2	torches
Lithium	10	computers

Plasma

Plasma contains a number of different substances.

Sugar is used to give cells energy. The concentration of sugar is 0.25g per litre of plasma. Salts are used to help blood cells work properly, and are present at 1.8g per litre. The concentration of protein is 17g per litre. Proteins help blood to clot. To give the blood its correct thickness, plasma contains 1.35g of fat per litre.

- Present the information as a table with **three** suitable headings.

Birds

Here is some information about **birds**.

The smallest European bird is the goldcrest. Its length is only 9cm. It is mainly seen in woods, along with the nuthatch. The nuthatch is a bigger bird at 14cm. The kingfisher is 16.5cm long and is seen around water. The swallow is seen swooping over fields and is 19cm in length.

- Present the information as a table with **three** suitable headings.

Drugs

Many common **drugs** are obtained from **plants**. Each drug has a different **use**.

The opium poppy plant produces the drug codeine which is used as a painkiller. Quinine is a drug used as an anti-malarial agent. Quinine is obtained from the yellow cinchona plant. Used as a muscle relaxant, the drug curare is obtained from the Amazonian liana. Diosgenin is a drug used in birth control. It is obtained from the mexican yam plant.

- Present the information as a table with **three** suitable headings.

Diseases

Diseases can have different **causes**. The **way diseases spread** can be different.

Cholera is a disease caused by a bacterium and is spread through infected water. Mumps is a disease caused by a virus and is spread by droplets in the air. The parasite which causes the disease malaria is spread by female mosquitoes. A virus causes measles which, like mumps, is spread by droplets in the air.

- Present the information as a table with **three** suitable headings.

Bears

Different types of bear are found throughout the world. The Spectacled Bear is found in South America and weighs 150kg. The Sun Bear is a small bear weighing only 50 kg and is found in South East Asia. Both the Grizzly Bear and the Black Bear are found in North America. The Grizzly is larger, weighing 200kg, with the Black Bear weighing 120kg.

- Present the information as a table with suitable headings.

Isotopes

Here is some information about isotopes which give out different types of radiation.

The isotope Radon-210 gives out alpha radiation and has a half-life of 2.4 hours. Sodium-24, which has a half-life of 5.0 hours, gives out beta radiation. Lead-212 also gives out beta radiation, but its half-life is 10.6 hours. Gamma radiation is given out by Technetium-99, which has a half-life of 6.0 hours.

- Present the information as a table with **three** suitable headings.

Plastics

Plastics have many different uses. Poly(vinyl chloride) can be used to make clothes. The non-stick coating on saucepans is made from poly(tetrafluoroethene). Plastic bags are made from poly(ethene) while washing-up bowls are made from poly(propene).

- Present this information as a table with suitable headings.

More about Plastics

Plastics have many uses. Perspex is used to make advertising signs. Artificial limbs can be made from PVC. Polythene can be used to make carrier bags and egg cartons can be made from polystyrene.

- Present this information as a table with suitable headings.

Steels

Iron can be mixed with other elements to produce steel for different uses. Chromium is added to make steel suitable for use in cooking pots. Railway tracks are made from steel which contains manganese. Titanium is added to make steel suitable for aircraft parts while adding tungsten produces steel used to make hammers.

- Present the above information in a table with suitable headings.

Plant Groups

There are four major groups of plants. Features used to identify members of each group include the presence of a transport system, the shape of their leaves and their method of reproduction. Flowering plants and the conifers reproduce using seeds. They both have transport systems but they differ in the shape of their leaves. Conifers have needle-like leaves whereas the leaves of flowering plants are either narrow or broad. Mosses don't have any true leaves or transport systems. Ferns have transport systems and feathery leaves but they reproduce using spores, as do the mosses.

- Use the information above to complete the table about the plant groups. You will have to insert the headings.

	absent	no true leaves	
Ferns			
			seeds
	present		

Pencils

Have you ever wondered where the idea for the pencil came from? The pencil's history is said to date back to 1564. Legend has it that trees in the British Isles were uprooted by a hurricane. Under one such tree, in Borrowdale, England, a farmer found a strange black substance. The farmer discovered that this substance would not wash off. He and other farmers began using the substance to mark their sheep. The substance they were using was called graphite, and mixed with clay; it is what is inside of the wooden casings of the pencils we use today.

Did you ever wonder what the different numbers on pencils meant? In the United States, pencils are identified by the numbers 1, 2, and 3. A number 1 pencil is soft and makes a very dark mark without applying much pressure and is therefore used frequently for sketching. Teachers often request that students use a number 2 pencil. These pencils are more medium-soft. A number 3 pencil is very hard, but not as dark. It's good for tracing. Whether we are using a 1, 2, or a 3, it is difficult to imagine life without pencils.

- Use the information in the paragraphs above to complete the table. You will have to include headings.

Indicators

Alizarin is an indicator with a colour change from pink to violet over the pH range 11·0 to 13·0. Over the pH range 3·0 to 5·0, congo-red indicator changes colour from blue to red. Both thymol-blue indicator and methyl-red indicator change from red to yellow. The pH range for thymol-blue indicator is 1·2 to 2·8 and for methyl-red indicator it is 4·2 to 6·3.

Present this information as a table with **three** suitable headings.

Hydroelectric Dams

Information about **hydroelectric dams**, the **number of generators** and the **power** generated is given below.

The Tucurui hydroelectric dam uses 18 generators to produce 7960 MW of power. The 6 generators at the Ertan hydroelectric dam generate 3300 MW of power. 10 800 MW of power is produced by the 24 generators at the Grand Coulee hydroelectric dam. The Guri hydroelectric dam, which has 20 generators, produces 10 300 MW of power.

Present this information as a table with three suitable headings.

Lemurs

Different **types of lemur** are found in Madagascar. Each type of lemur has a different **colour of fur**. The **main diet** of each lemur is different.

The Bushbaby lemur has grey fur and feeds on insects. The Red-ruffed lemur eats fruit and has red, black and white fur. The Ring-tailed lemur and the Blue-eyed lemur both feed on fruit and leaves. The Ring-tailed lemur has grey, black and white fur but the fur of the Blue-eyed lemur is all black.



Present this information as a table with **three** suitable headings.

Diamonds

Some famous **diamonds** have been found in different **countries**. Each diamond has a different **weight** measured in carats.

The Kohinoor diamond, from India, has a weight of 105.60 carats. The Millenium Star diamond has a weight of 203.04 carats and was found in Congo. The Centenary diamond weighs 273.85 carats and the Cullinan diamond, the largest ever found, weighs 530.20 carats. Both the Centenary and Cullinan diamonds were found in South Africa.



Present this information in a table with **three** suitable headings.

Types of Coal

Different **types of coal** have different **moisture content (%)**. The **heat output (kW/kg)** depends on the type of coal.

Anthracite coal has a moisture content of 15%. The heat output of anthracite is 9 kW/kg. Bituminous coal has a higher moisture content of 20% and gives out 7.5 kW/kg. The heat output of lignite coal is 6 kW/kg and it has a moisture content of 30%. Brown coal has the lowest heat output, 5 kW/kg, and at 45%, it has the highest moisture content.

Show this information in a table with **three** suitable headings.

Smoking Habits

There are four countries in the UK. In each **country** some men have **never smoked** and some are **ex-smokers**.

In Wales, 45% of men have never smoked and 28% are ex-smokers. 35% of the male population in Northern Ireland have never smoked with another 37% being ex-smokers.

26% of the male population in Scotland are ex-smokers. In both England and Scotland 41% of men have never smoked. In England 31% of men are ex-smokers.

Present this information in a table with **three** suitable headings.

Smoking habits of men in the UK

Migration

Many animals move from one area to another at different times during the year. This movement is called migration.

Animals migrate for different reasons. Some, like the manatee and the Ruby-Throated Hummingbird, migrate to countries nearer the Equator stay warm in the winter. Some animals migrate for food, water, and protection. Caribou move south each winter to evergreen forests. The forests protect them from the cold winds and provide a better food supply. Other animals, like the Emperor Penguin, migrate for their children. These penguins choose the coldest time of year and the coldest place on the planet- Antarctica- to raise their young. They migrate inland, away from the sea, so they are far away from predators when their eggs hatch. These journeys are often thousands of miles.

- Fill in the information from the passage above in the table. You will have to provide the headings.

The Mountain Ecosystem

The following passage describes three **habitats** found in the mountain ecosystem of North America, with the **vegetation** and **wildlife** found in each.

- Fill in the information it provides in the table below, using appropriate headings.

A habitat is where a plant or animal lives and grows. A habitat is part of an ecosystem where lots of different plants and animals live. Mountains, with their many levels are an ecosystem containing many different habitats.

At the base of a mountain, you will probably find a forest filled with lots of plants and trees. A grizzly bear or a garter snake might cross your path. You might catch a glimpse of an owl in a tree. Climb higher, toward the middle of the mountainside and leave the forest behind for grasslands and maybe a stream. Here, you might encounter a mountain lion stalking its prey or a salamander slipping underneath of a leaf to hide. Goats might be leaping from rock to rock. Climb even higher, toward the top, and you'll notice a change in the temperature. It's getting colder and snow is covering the mountaintops. There aren't many plants near the mountaintop, but you might see fuzzy lichen covering rocks like carpeting. The air is thin at the top of the mountain, which makes it difficult for large animals to breathe. When people climb very large mountains, they often take special air tanks filled with oxygen. Even though you won't see many big animals, millions of tiny insects like snow fleas might dot the landscape.

Depending on the elevation, you could see deserts, river valleys, meadows, forests and snow caps all on one mountain. And with each unique habitat, comes unique plant and animal life.

Habitat	Vegetation	Wildlife

Turtles, Tortoises, and Terrapins

There's actually around 300 different species of turtles, tortoises and terrapins. So what's the difference?

An easy way to tell a terrapin from a turtle is from its colouring. Terrapins have bright yellow and green patterns on their shells and bodies. These animals live in fresh or brackish (partly salted) water. They are commonly found in ponds and river beds where they will bask in the sun on rocks and logs. Their feet are designed both for swimming, with webbed toes and sharp claws for climbing. This small group includes the *Slider* and *Red-Eared Slider* which has jaunty red stripes along its face.

Tortoises are built for the rugged terrain and live strictly on land. They have thick, stumpy legs and claws that help propel them forward and dig deep holes. The Gopher Tortoise is able to dig underground tunnels over 40 feet long and 10 feet deep. No meat is required in a tortoise's diet, they're purely vegetarians. But that doesn't stop the Galapagos Giant Tortoise from weighing well over 400 pounds. Plus its shell can grow to be five feet long and 3 feet high.

Sea turtles live exclusively in the ocean waters. The only time they come ashore is to lay their eggs on a sandy beach. Unlike terrapins, their front legs are more like flippers. This enables them to swim and dive in the water. *The Leatherback Turtle* is the biggest sea turtle. It measures 6 feet long and 4 feet wide. Its average weight is 880 pounds, with the biggest one weighing 2015 pounds. How can he get so big? This turtle's diet consists mainly of jellyfish. Not all turtles live in the sea. Turtles can also live in lakes and ponds as well. The *Stinkpot Turtle* prefers to crawl along the bottom of ponds and rivers.

Design and complete a table to show **three** differences between terrapins, tortoises and turtles. You will have to include suitable headings.

Terrapins			
Tortoises			
Turtles			

Reptiles and Amphibians

People often confuse the two groups of vertebrates; reptiles and amphibians.

Reptiles include snakes, lizards, turtles, and crocodilians. Amphibians include frogs, toads, salamanders and newts.

Reptiles usually lay eggs protected by a shell. Amphibian eggs do not have a protective shell. They are soft and jelly-like. When a reptile hatches from its egg, it looks like a smaller version of the adult reptile. Its body does not change much as it grows. When an amphibian hatches, on the other hand, it does not look anything like an adult. Amphibians begin their life as larvae – usually tadpoles that swim in the water. When they get older they grow legs and transform into frogs, toads, caecilians, newts, or salamanders. These changes are called metamorphoses.

All reptiles have lungs to breathe air. Amphibians breathe air for only part of their lives. Amphibian larvae have gills to breath oxygen in water, like a fish. As they grow into adults, most amphibians form lungs so they can breathe air. Many adult amphibians also have special skin that allows them to absorb oxygen.

Reptiles' skin is covered with waterproof scales. The skin of a frog is different from the skin of a snake. The frog is an amphibian, so its body is covered with skin that does not have scales. Frogs, salamanders, and newts all have smooth, wet skin.

Reptiles can live in many different types of habitats, whereas amphibians cannot. Reptiles can be found in temperate and tropical climates around the world. Some reptiles, like crocodiles and sea turtles, spend most of their lives in water. Others, like iguanas and rattlesnakes, can live in dry, hot deserts. Amphibians, on the other hand, usually spend most of their lives in damp places near water.

- Design and complete a table to show **as many differences as possible** between reptiles and amphibians.